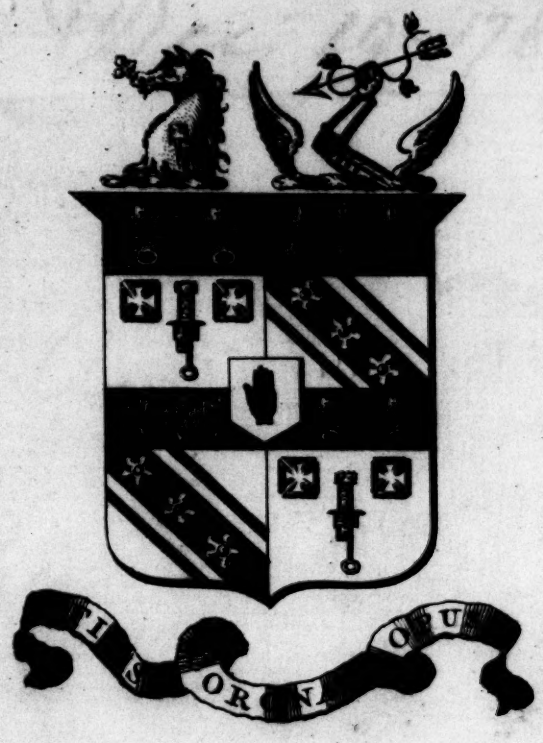
P. W. Baker

Banister



Sir Edward B. Baker. Bar.t

page 573 in the notes. the author of
this Book seems unintentionally to
have discovered himself to be the
present D. Oxford

T-HOMAS

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PLANTING

AND

ORNAMENTAL GARDENING;

A

PRACTICAL TREATISE.

LONDON:
Printed for J. DODSLEY, Pall-Mall.
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THE Intention of this Publication is to bring into one point of view, and arrange in a compendious form, the Art of Planting and Laying-out Plantations: an art which, though in itſelf a unity, has hitherto been treated of as two diſtinct ſubjects. Books upon Planting we have many; and thoſe upon ornamental Gardening are not leſs numerous; but a Practical Treatiſe comprehending the entire ſubject of conducting rural improvements upon the principles of modern taſte, has not hitherto appeared in public. This circumſtance, however, is the leſs to be wondered at, as the man of buſineſs and the man of taſte are rarely united in the ſame perſon. There are many Nurſerymen who are intimately acquainted with the various methods of propagating trees and ſhrubs; and many gentlemen whoſe natural taſte, reading, and obſervation,

obſervation enable them to form juſt ideas of rural embelliſhment; but where ſhall we find the Nurſeryman who is capable of ſtriking out the great deſign, or the Gentleman equal to the management of every tree and ſhrub he may wiſh to aſſemble in his collection? To proceed one ſtep farther, where is the Gentleman, or the Nurſeryman, who is ſufficiently converſant in the after treatment of Woodlands, Hedges, and the more uſeful Plantations? In fine, where ſhall we look for the man who in the ſame perſon unites the Nurſeryman, the Land-Steward, the Ornamentaliſt, and the Author? We know no ſuch man: the reader therefore muſt not be diſappointed when he finds that, in treating of exotic trees and ſhrubs, the works of preceding writers have been made uſe of.

Cook is our firſt writer on Planting; nevertheleſs Evelyn has been ſtyled the Father of Planting in England. It is probable that, in the early part of life, Evelyn was a practical planter upon his eſtate at Wotton in Surrey; but his book was written in the wane of life, at Greenwich, during a long and painful fit

of

of the gout. His *Syrva* contains many practical rules, valuable, no doubt, in his day, but now ſuperſeded by modern practice; and may be ſaid to lie buried in a farrago of traditional tales and learned digreſſions ſuited to the age he lived in *. MILLER at length aroſe among a group of minor planters; and after him the indefatigable HANBURY, whoſe immenſe labours are in a manner loſt to the Public.

Cook and Evelyn treated profeſſedly of FOREST-TREES, Miller and Hanbury include ORNAMENTALS; but their works, which are voluminous and expenſive, alſo include kitchen-gardening, flower-gardening, the management of green-houſes, ſtoves, &c. &c. the propagation of trees and ſhrubs, adapted to the open air of this climate, forming only a ſmall portion of their reſpective publications.

Miller and Hanbury, however, are the only writers who could afford us the required aſſiſtance; and we were led to a choice of the latter, as our chief authority, by three prin-

* The firſt Edition was printed in 1664, having been previouſly read before the Royal Society in 1662.

cipal

cipal motives:—Hanbury wrote ſince Miller, and having made ample uſe of Mr. M.'s book, his work contains in effect the experience of both writers: Miller is in the hands of moſt gentlemen; Hanbury is known to few; his book, either through a want of method, a want of language, or through an ill-judged plan of publiſhing on his own account, has never *ſold*: and laſtly, Miller's botanical arrangement is become obſolete; Hanbury's is agreeable to the Linnean ſyſtem.

Since Mr. Hanbury's death, the public have been favored with a new and ſumptuous edition of Evelyn's Sylva; with notes by Dr. Hunter of York, conſiſting of botanical deſcriptions, and the modern propagation of ſuch trees as Evelyn has treated of. Theſe notes, however, contain little new information; the deſcriptions being principally copied from Miller, and the practical directions from Hanbury.

Leſt unacknowledged aſſiſtance, or aſſiſtance acknowledged indirectly, ſhould be laid to our charge, it is thought proper in this place to particularize the ſeveral parts of this publication which are *written* from thoſe which are *copied*.

The

The INTRODUCTORY DISCOURSES, containing the Elements of Planting, and the Outline of the Linnean Syſtem, are, as rudiments, entirely new; excepting the quotations from Linneus's work, which quotations are extracted from the Lichfield Tranſlation of The *Syſtema Vegetabilium* of that great man.

The ALPHABET OF PLANTS, ſo far as it relates to TIMBER-TREES, and other NATIVE PLANTS, as well as to ſome of the more USEFUL EXOTICS, is either wholly our own, or contains ſuch additions as have reſulted from our own obſervation and experience: ſo far as it relates to ORNAMENTAL EXOTICS, it is entirely HANBURY's; excepting the quotations which are marked, and excepting the GENERAL ARRANGEMENT, which is entirely new. HANBURY has not leſs than ſix diſtinct claſſes for the plants here treated of, namely, deciduous Foreſt-Trees, Aquatics, evergreen Foreſt-Trees, deciduous Trees proper for ornament and ſhade, evergreen Trees proper for ornament and ſhade, and hardy climbing Plants. The firſt three claſſes are without any ſubordinate arrangement; in the laſt three the plants are arranged alphabetically, agreeably

to

to their genera. This want of ſimplicity in the arrangement renders the work extremely heavy and irkſome to refer to; and is productive of much unneceſſary repetition, or of tireſome references from one part of his unwieldy work to another. His botanical ſynonyms we have wholly thrown aſide, as being burdenſome, yet uninſtructive; and in their place we have annexed to each Species the trivial or ſpecific name of LINNEUS, which in one word identifies the plant with a greater degree of certainty than a volume of Synonyma. Other retrenchments, and a multiplicity of corrections have taken place: however, where practical knowledge appears to ariſe incidentally out of our author's own experience, we have cautiouſly given it in his own words: likewiſe, where intereſting information lies entangled in a ſingularity of manner, from which it could not well be extricated, we have marked the paſſages containing it, as literal quotations;---to diſtinguiſh them from others, which, having been written in a manner more properly didactic, or brought to that form by retrenchment or correction, we conſider as being

ing more fully entitled to the places we have aſſigned them.

The articles TIMBER, HEDGES, and WOODLANDS, are altogether new *, being drawn from a conſiderable ſhare of experience, and an extended obſervation.

The article GROUNDS is likewiſe new, if any thing new can be offered on a ſubject upon which ſo much has been already written. Taſte, however, is a ſubject upon which all men will think and write differently, even though their ſources of information may have been the ſame. WHEATLEY, MASON, and NATURE, with ſome EXPERIENCE, and much OBSERVATION, are the principal ſources from which this part of our work was drawn: if we add that it was planned, and in part written, among the magnificent ſcenes of nature in Monmouthſhire, Herefordſhire, and Glouceſterſhire, where the rich and the romantic are happily blended, in a manner unparalleled in any other part of the Iſland, we flatter ourſelves no one will be diſſatisfied with the *origin:* of the *production*, let the Public ſpeak.

* Excepting ſuch extracts and quotations as are marked, and have their reſpective authorities ſubjoined.

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The articles TIMBER, TIMBER-TREES, and WOODLANDS, are altogether new, being drawn from a considerable share of experience, and an extended observation.

The article GROUNDS is likewise new, if any thing new can be offered on a subject upon which so much has been already written. Taste, however, is a subject upon which all men will think and write differently, even though their sources of information may have been the same. VITRUVIUS, MASON, and NATURE, with some EXPERIENCE, and much OBSERVATION, are the principal sources from which this part of our work was drawn: if we add that it was planned and in part written among the magnificent scenes of nature in Monmouthshire, Herefordshire, and Gloucestershire, where the rich and the romantic are happily blended, in a manner not easily hit in any other part of the island, we flatter ourselves no one will be disgusted with the style of the publication, let the public speak.

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ERRATUM.

Page 14. l. 3. *after* them, *read*—the part placed in contact with the ſoil ſends forth roots, whilſt that expoſed to the open air ſends forth branches.

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INTRODUCTION
TO
PLANTING
AND
ORNAMENTAL GARDENING.

GENERAL VIEW.

THE earth produces an almoſt infinite variety of Plants, poſſeſſing various properties, and different degrees of ſtrength and ſtature. In the vegetable as in the animal world, the ſtronger ſubdue the weaker: the herbaceous tribes bow to the ſhrub, and this to the more robuſt foreſt-tree; and in an unpeopled country a ſtate of woodineſs prevails. The interior parts of America are at this day a foreſt: the Continent of Europe too has ſtill its foreſt; and England once was famous for her's.

As inhabitants increaſe, woodineſſes give way to huſbandry and the arts; not merely as incumbrances, but as affording uſeful materials. Population ſtill increaſing, the *foreſt* breaks into *woods*.

Commerce and luxury advancing, the canoe becomes a ſhip, and the cottage a manſion; at length even the woods dwindle away, and *plantations*, or an *import of foreign timber*, become neceſſary to ſupply the want.

England has experienced, more or leſs, every ſtage of this decline. Its preſent ſtate, in reſpect to timber, we conceive to be this: A few broken foreſts and many extenſive woodlands ſtill remaining; a great number of plantations of different growths, and a vaſt ſupply of foreign timber of various kinds. Indeed, we are of opinion, that had it not been for this foreign ſupply, ſcarcely a timber-tree, at this day, would have been left ſtanding upon the iſland.

Our exiſtence, as a nation, depends upon a full and *certain* ſupply of ſhipping; and this, we may venture to ſay, upon an *internal* ſupply of ſhip-timber. That there is no want of oak-timber at preſent in this iſland is, we believe, a fact; but that the article of *ſhip*-timber is growing ſcarce, as we ſhall explain more fully in its proper place, is, we believe, alſo a fact which cannot be controverted. This is an important matter, which demands the firſt attention of Government, and is not unworthy the notice of every landed individual.

Mankind, however, do not view the face of nature in the light of ſelf-preſervation only; the great

Author

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Author of creation has wonderfully adapted our ſenſes to the enjoyment of its delights; the eye is gratified by tints of verdure, and the ear by the muſic of the woods and the mellowneſs of echo—and both by the voice and majeſty of a foreſt rouſed by the breath of Nature. Our plan therefore has two objects, UTILITY and ORNAMENT; they are nearly allied, however, as labour and recreation, or as the uſe and the ornament of dreſs.

But before we give directions for raiſing a wood, or ornamenting the face of a country, we muſt firſt treat ſeparately of each individual tree and ſhrub adapted to our purpoſe; and, preparatory to this, give a comprehenſive view of the operations incident to

PROPAGATING,	PLANTING-OUT, and
TRAINING-UP,	TRANSPLANTING.

Trees and Shrubs in general.

PROPAGATING TREES AND SHRUBS.

TREES and Shrubs are propagated

From SEEDS,	by LAYERING,
—— SUCKERS,	— BUDDING,
—— CUTTINGS,	— GRAFTING.

But before the young planter put his foot upon the ſpade, we beg leave to caution him in the ſtrongeſt terms againſt a WANT OF SPIRIT. A ſlo-

venly planter ranks among the moſt extravagant order of ſlovens: the labour, the plants, and the ground are thrown away; beſides the conſequent diſgrace, not only to the individual himſelf, but to the profeſſion in general. Anxious and intereſted as we are in the cauſe of planting, we would rather want pupils than have them paſs through our hands *unfiniſhed:* we therefore reject all ſuch as have not induſtry, ſpirit, and perſeverance, to go through with what they undertake; and we recommend to ſuch as are poſſeſſed of theſe valuable qualifications, *to begin upon a ſmall ſcale*, and to let their ſeminary, their nurſery, and their plantations increaſe with their experience.

Whilſt, however, we caution againſt entering immaturely upon the buſineſs of planting, we cannot refrain from mentioning the PLEASURES which reſult from it. How rational, and to a contemplative mind how delightful, to obſerve the operations of Nature;—to trace her in every ſtage, from the ſeed to the perfected plant; and, from beneath the leaf-ſtalk of this, through the flower-bud, the flower, and the ſeed-veſſel, to the ſeed again! Man muſt be employed; and how more agreeably than in converſing with Nature, and in ſeeing the works of his own hands, aſſiſted by her, riſing into perfection.

Nor

Nor do we mean to hold out pleaſure alone as an inducement to planting;—its PROFITS are great, when properly executed, and this idea adds ſolidity to the enjoyment. Pleaſure alone may ſatiate; but profit and pleaſure united ſeldom fail of producing a laſting gratification.

There is another incitement to planting, which alone has been generally held out as a ſufficient inducement. We are ſorry to confeſs, however, that we know too much of mankind, to believe that PATRIOTISM, unaided by perſonal intereſt, will ever produce a ſupply of ſhip-timber to this or any other nation. Far be it from us, however faſhionable it may be, to ſpeak irreverently of patriotiſm; we conſider it as the nobleſt attribute of the human mind. Young men, to whom we more particularly addreſs ourſelves, are ſeldom without ſome ſhare of it; and we flatter ourſelves that this virtuous principle, aſſiſted by the pleaſure, the profit, and the POPULARITY which attends planting,—ornamental plantations more particularly,—will induce the young men of the preſent age to ſtudy and practiſe it; not more for themſelves than for future generations.

PROPAGATING FROM SEED.—There are four ways of raiſing from ſeed the trees and ſhrubs adapted to our purpoſe:

In Beds of natural Soil,
In Beds of Compoſt,
In Pots,—and ſome few
In Stoves, or under Glaſſes.

It will be expected, perhaps, before we begin to treat of the different methods of ſowing, that we give ſome directions for GATHERING and preſerving ſeeds. Little, however, can be ſaid upon the ſubject under this general head; different ſpecies requiring a difference in management. We may, nevertheleſs, venture to ſay, that all ſeeds ought to be fully matured upon their native plants; and we may further add, that ſuch as drop ſpontaneouſly from the ſeed-veſſel, or are ſhed by a moderate wind, or other gentle agitation, are preferable to thoſe which are torn from the tree immaturely. The ſeeds of ſcarce or valuable plants may be gathered thus: As ſoon as they begin to fall of themſelves, ſpread a cloth under the plant, and agitate it moderately, until all that are ripe have fallen;—and repeat this whenever a ſecond and a third ſpontaneous fall takes place.

The art of PRESERVING ſeeds reſts chiefly upon that of *curing* them immediately after gathering. If graſs were put into the ſtack immediately after mowing, or corn threſhed out at harveſt and laid in heaps, it would preſently heat and become entirely ſpoiled. So it is with the ſeeds of trees and ſhrubs: therefore

therefore they ought, as ſoon as they are gathered, to be ſpread thin in an airy place, and be turned as often as a cloſe attention ſees neceſſary. When the ſuperfluous moiſture has evaporated, they may be collected into bulk; remembering, however, to run them every now and then down a ſkreen, or ſhake them in a ſieve, that their brightneſs and ſweetneſs may be preſerved. Some of the larger ſeeds, acorns eſpecially, are difficult to cure, and require a very ſtrict attention. It muſt alſo be remembered, that mice and other vermin are dangerous enemies to ſeeds. Thoſe which are particularly valuable, may be hung up in bags to the ceiling of a dry room.

In procuring ſeeds from the SHOPS, or from ABROAD, ſome caution is neceſſary. A reputable ſeedſman, and a correſpondent who is himſelf a judge of the quality of ſeeds, are the beſt general guards againſt impoſition and diſappointment.

There are ſeveral ways of TRYING THE QUALITY of ſeeds. The heavier kinds may be proved in water; ſuch as ſwim are at leaſt doubtful. The lighter ſorts may be tried by biting them: if they break abruptly between the teeth, they are generally good; but if they be tough and leathery, they are moſtly the contrary. If when cruſhed, or ſeparated by a knife or ſciſſars, they appear firm, white, and farinaceous, they may generally be eſteemed good; but if on the contrary they be ſpungy and diſcoloured,

loured; they are generally of a bad quality. But the moſt certain mode of trial, and that which in caſes of ſuſpicion ought never to be omitted, is to *force* a few of them in a garden-pot, placed in an artificial heat, or other warm ſituation. Put in ſome certain number, taken promiſcuouſly from the parcel, and, from the proportional number that vegetate, a tolerably juſt idea may be formed of the quality of the whole. Without this precaution a ſeaſon may be loſt, and the uſe of the land, together with the labour, be thrown away.

All the natives, and many exotics, may be raiſed in BEDS OF NATURAL MOULD. The ſoil ſhould be rich, and ſufficiently deep to admit of being trenched or double-dug two ſpit deep. If it will not bear one ſpit and a half, namely about fourteen inches, it is improper for ſeed-beds, and ſhould either be wholly rejected, or (if the ſubſtratum is not of too hungry and poiſonous a nature) be trenched a ſpit and a half deep, and the crude mould meliorated by manure and repeated diggings. Autumn is the beſt time to bring up the ſubſtratum, letting it lie in rough trenches all winter to take the froſt. In the ſpring put on a quantity of dung, in proportion to the poverty of the ſoil; turning it in ſuperficially, and mixing it well with the ſoil to be improved. Repeat this ſingle digging, through the ſummer, as often as convenient, or as often as the weeds, which

never

never fail to riſe in great abundance from a ſubſtratum expoſed to the ſun and air, require it. In autumn turn up the ſoil from the bottom, and mix the whole well together. The longer the ſoil and ſubſtratum lie in the ſtate of inverſion, the better tempered the freſh mould will become, and the mellower will be the old cultivated ſoil. In a manner ſimilar to this, all ſoils which are not naturally rich ought to be treated. No department of planting calls more loudly for a ſpirited management than the ſeminary, which, if not rich and deep by nature, ought to be made ſo by art, at almoſt any expence.

In large undertakings a ſeparate ſeminary may be neceſſary; but, in general, a portion of the kitchen garden is better adapted to the purpoſe. There are indeed two very great advantages in mixing the ſeminary with the kitchen-garden: the ſeed-beds are always under the eye, and are more likely to be defended from weeds and vermin there, than in a detached ſeminary viſited only now and then; and, when the ground has borne a crop of ſeedling plants, it may be applied to the purpoſe of culinary herbs; whilſt that which has been long under crops of theſe may be changed to ſeed-beds. In whatever ſituation they are placed, they muſt be carefully fenced againſt hares and rabbits, or the labour of a whole ſeaſon may be cut off in a few nights: in this light alſo the kitchen-garden has a preference.

It would be idle to give particular directions for laying out a SEMINARY, or to ſay under this general head where this or that ſeed ſhould be ſown. Suffice it therefore to mention here, that SEED-BEDS are generally made from four to four feet and a half wide, with intervals of one foot and a half to two feet. Theſe dimenſions render them convenient to be weeded, without the plants being trodden or kneeled upon.

The METHOD OF SOWING is various: By DIBBLING, by DRILLING, and by BROADCAST, which laſt is the moſt prevailing method. Seeds ſown in the promiſcuous broadcaſt manner are covered either with the rake, or with the ſpade (or ſieve). COVERING WITH THE SPADE (or ſieve) is the common practice, and is thus performed: The ſurface being made light and fine by a recent digging and raking, and the beds formed (operations which every gardener and gardener's man are acquainted with), a thin coat of mould is raked off the beds into the intervals, in proportion to the depth the ſeeds require to be buried, and according to the nature of the ſoil, taken jointly. In a light ſandy ſoil, the ſeeds require to be buried deeper than they do in a ſtrong loam; and whilſt an acorn may be covered from one to three inches, the ſeeds of Larch will not bear more than from a quarter to three-fourths of an inch. The new ſurface being rendered perfectly fine and level, the ſeeds are

ſown,

ſown, and in ſome caſes preſſed gently into the mould, by patting it with the back of the ſpade. The earth which was raked off into the interval (or taken off with a ſpade and placed in little hillocks in it) is now returned; either by caſting it on with the ſpade, with a kind of ſleight which nothing but practice can give, or by ſifting it on through a ſieve (an operation more eaſy to the inexpert, and in many caſes preferable) as even and regularly as poſſible. The intervals cleared, the beds neated up, and if the ſoil be light, or the ſeed requires it, their ſurfaces patted with the back of the ſpade, ſo as to give them a kind of poliſhed firmneſs, the buſineſs is finiſhed. DRILLING is performed two ways: By drawing open drills with hoes in the common manner, or by taking off the ſurface of the beds, drawing lines upon the new ſurface, laying or ſcattering the ſeeds along theſe lines, and covering them with the ſpade or ſieve, as above directed for broadcaſt ſowing.

The next buſineſs of the ſeminary is to DEFEND the ſeed and ſeedling from BIRDS, VERMIN, the WEATHER, and WEEDS. Nets are the beſt guard againſt birds, and traps againſt vermin. As a defence againſt the ſcorching heat of the ſun, the beds ſhould be hooped, and matts occaſionally ſpread over them, in the manner of a tilt or awning; but when the ſcorching abates the matts ſhould be taken off, to give the plants the benefits of the atmoſphere;

atmoſphere; and in dry weather the beds ſhould be kept conſtantly watered. The awnings are equally ſafe-guards againſt ſpring-froſts, than which nothing is more injurious to ſeedling plants. In reſpect to WEEDS, there is a general rule, which ought not to be departed from; that is, not to ſuffer them to get too ſtrong before they be drawn; for, if they be permitted to form large roots, they not only encumber and rob the ground, but in drawing them many ſeeds or tender ſeedlings will be drawn out with them. To prevent the young plants from being DRAWN OUT OF THE GROUND BY WINTER-FROSTS, which they are very liable to, eſpecially by a continuance of froſt and thaw alternately, coal-aſhes may be ſifted over them. If this evil has already taken place, and the roots appear expoſed above-ground, ſome fine mould ſhould firſt be ſifted on to cover the roots, and then the aſhes ſifted over the mould. If the plants be BEATEN OUT OF THE GROUND BY HEAVY RAINS, the remedy is ſimilar.

The length of time between the ſowing of the ſeed and the appearance of the plant is very uncertain: much depends upon the ſeaſon, and ſtill more upon the nature of the plant itſelf. Some ſeeds lie in the ground a whole year before they vegetate, and ſome two or three years (as will be mentioned under their reſpective ſpecies). During this time the beds ſhould be kept free from weeds and moſs; and, in caſe of a long continuance of dry weather,

ſhould

ſhould be well watered. After very heavy rains, which are liable to run the ſurface to a batter and waſh away part of the ſoil, it is well to rake the beds ſlightly, and ſift over them a little freſh mould: this prevents the ſurface from baking, and at once gives a ſupply of air and nouriſhment to the embryo plants.

BEDS OF COMPOST are made by mixing drift-ſand, or other materials, with the natural ſoil of the ſeminary, or with virgin mould taken from a rich meadow or old paſture-ground. But the particular ingredients of a compoſt depend upon the nature of the plant to be raiſed; and the reader is referred to the reſpective Species in the ALPHABET OF PLANTS for further information on this head.

The mode of raiſing plants in POTS and BOXES alſo depends greatly upon the particular plant to be raiſed. The chief intent of this method is to guard the embryo and ſeedling plants from the extremes of heat and cold. The pots are filled with compoſt ſuited to the plant. For examples, ſee the articles ANNONA, ARALIA, AZALIA, MELIA, PISTACIA, &c. &c.

PROPAGATING FROM CUTTINGS.—It is not from ſeeds alone that plants may be increaſed; ſo great a ſimplicity prevails in the ſyſtem of vegetation, that numerous tribes may be propagated from twigs or truncheons cut out of the woody parts

parts of the plants themſelves, and ſtuck naked into the ground without either root or branch upon them: the part in contact with the ſoil ſends forth roots, which, expoſed to the open air, ſend forth branches!

But altho' moſt of the aquatics, and many other genera of trees and ſhrubs, may be raiſed from CUTTINGS planted in common earth and in the open air, there are others which require more care and greater helps. Some require a warm, others a cool border: ſome muſt be rooted in pots, others in ſtoves, or in the green-houſe. Again, ſome ſhould be taken from the older branches, others from younger ſhoots: ſome require to be planted in autumn, others in the ſpring. Theſe and other peculiarities of treatment will be ſpecified, when we come to treat ſeparately of each individual.

PROPAGATING FROM SUCKERS.—There is a great ſimilarity between the branches and the roots of plants. If the fibres of ſome ſpecies become expoſed to the air, they quit their function of ſupplying the parent plant with nouriſhment, and, taking upon them the nature of ſeedlings, put forth leaves and branches. Theſe rootling plants are called SUCKERS; and if they be ſlipt off from the parent root, and planted in a ſoil and ſituation ſuited to their reſpective natures, they will grow up in the manner of ſeedling plants.

Various

Various opinions are held reſpecting the propriety of raiſing trees and ſhrubs from ſuckers: EVELYN and MILLER are againſt the practice; ſaying, that plants raiſed from ſuckers are more apt to ſend up ſuckers (which are troubleſome intruders, eſpecially in ornamental grounds) than thoſe of the ſame ſpecies which have been raiſed from ſeeds. HANBURY, however, is of a contrary opinion: he ſays, "What might incline people to this notion was, that they have obſerved trees raiſed from ſeeds very long before they produced ſuckers: but they ſhould conſider, that no tree or plant will produce ſuckers till it is of a ſuitable ſize or ſtrength for the purpoſe, any more than animals can produce young before they are of proper age; and let them plant a ſeedling that is grown ſtrong, a layer of the ſame ſtrength, and one which has been raiſed from a ſucker, exactly of the ſame ſize, and with the ſame number of fibres to the root, and they will find that the ſeedling or the layer will not be behindhand with the other in producing ſuckers, if they have all a like ſoil and ſituation; for it is peculiar to them to ſport under the ſoil in this manner; and Nature will ever act agreeably to herſelf, if not ſtopped in her progreſs by art." Nevertheleſs, in ſpeaking of particular plants, we find him holding forth a different language.

PROPA-

PROPAGATING BY LAYERING.—As the roots of ſome plants when expoſed to the air ſend forth ſhoots and branches, ſo the branches of others, when placed in contact with the earth, ſend out fibres and roots, which being ſevered from the parent plant, a ſeparate tree is produced.

LAYERING being an operation by which a great majority of trees and ſhrubs may be propagated, and by which the many beautiful variegations are principally preſerved, we ſhall here give ſome general directions for performing it; reſerving, however, the minutiæ peculiar to each ſpecies until we come to treat of the individual ſpecies ſeparately.

LAYERS are bent either from the *ſtools* of trees and ſhrubs headed down to a few inches above the ſurface of the ground, or from *boughs*, plaſhed ſo as to bend their tops to the ground; or from *trees* brought into a ſtooping poſture, by excavating the ſoil on one ſide of them, until their heads are lowered into a ſimilar ſituation.

STOOLS afford the ſimpleſt, and are the moſt common, ſupply of layers. Where a great number of layers are wanted, plants ſhould be raiſed for the purpoſe, and planted in ſome well-fenced ground, or in ſome vacant part of the ſeminary or nurſery; and, when of a proper age and ſize, headed down to the height of about eight inches for ſtools. In many caſes, trees ſtanding in grounds or woods may be

be cut down, and give a ſufficient ſupply. In whatever ſituation they are, the earth round them muſt be double-dug as deep as the ſoil will allow, and be treated in a manner ſimilar to that of a ſeed-bed.

The METHOD OF LAYERING is this: Dig a ring-trench round the ſtool, of a depth ſuitable to the nature of the plant; and having pitched upon the ſhoots to be layered, bend them to the bottom of the trench (either with or without plaſhing, as may be found moſt convenient), and there *peg* them faſt; or, putting ſome mould upon them, *tread* them hard enough to prevent their ſpringing up again;—fill in the mould;—place the top of the layer in an upright poſture, treading the mould hard behind it; and cut it carefully off above the firſt, ſecond, or third eye.

In this ſimple way a numerous tribe of plants may be layered: there are many, however, which require a more complex treatment. Some will ſucceed by having a *chip* taken off the under ſide of the lower bend of the layer, which gives the fibres an opportunity of breaking out with greater freedom: others by having a *cleft* made in that part by thruſting an awl or bodkin through it, keeping the cleft open by a chip or wooden peg; or by making a longitudinal *ſlit in the bark* only: others ſucceed better by *twiſting* the part: and others again by *pricking* it, and binding a *wire* round it. But when SIMPLE LAYERING will not ſucceed, the moſt pre-

vailing, and in general the moſt certain method is that of TONGUE-LAYERING, which is thus performed: The excavation being made, and the layer choſen and trimmed, aſcertain where the lower bend of it will fall, by taking it in the left hand and bending it down to the bottom of the trench; then placing the thumb of the right hand firmly againſt the part oppoſite which the tongue falls, inſert the edge of the knife as with an intent to cut the layer off ſhort in that place; but having cut about half way thro' it, turn the edge of the knife abruptly upwards, drawing it along the pith half an inch, or an inch, according to the ſize of the layer. The whole ſtool being treated in this manner, proceed to peg the layers cloſe to the bottom of the trench, bedding the cleft or mouth of each in fine mould for the fibres to ſtrike into. (If the mould and the ſeaſon be very dry, it is well to moiſten ſome fine mould with ſoft water, making it into a paſte, and wrap the wounded part in a handful of this prepared earth.) This done, level in the mould, draw the point of the layer upright, and ſhorten it as above directed; being careful to diſturb the wounded part as little as poſſible. It is a practice with ſome to trim the ſtools entirely after layering: we would rather recommend, however, to trim off ſuch ſhoots only as are too old, or are defective, leaving ſuch as are too young to increaſe in growth;

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by which means an annual, inſtead of a biennial, ſucceſſion of layers will be had.

The TIME OF LAYERING is generally autumn; ſpring is favourable to ſome plants, and midſummer to others; but trees and ſhrubs in general may be layered at almoſt any time of the year.

The length of time requiſite for ROOTING a layer depends upon the nature of the plant: twelve months is generally conſidered as a ſufficient time, during which the layers ſhould be kept clear from weeds; and when the rooted plants are taken off, the ſtumps from which they were ſevered ſhould be cut off cloſe to the ſtools, in order that they may ſend forth a future ſupply of ſhoots.

BUDDING and GRAFTING are operations more particularly applicable to fruit-trees, and belong to the *kitchen-gardener* rather than to the *planter*. They are operations difficult to deſcribe upon paper; and are known to every nurſeryman and gardener. The great art in *grafting* lies in uniting the graft cloſely and firmly with the ſtock; and, in *budding*, not to leave too much wood, nor yet to pare it off too cloſe to the eye.

TRAINING-UP TREES AND SHRUBS.

TREES and ſhrubs may be trained up from the ſeed-bed, &c. until they be fit to be planted out to ſtand, either in nurſeries ſet apart for the purpoſe, or in YOUNG PLANTATIONS; which laſt are frequently the moſt eligible nurſeries, as will be explained hereafter. A SEPARATE NURSERY however is nevertheleſs neceſſary; and, in this place, it will be proper to give ſome general ideas of the ſoil, ſituation, and buſineſs of a nurſery-ground.

The SOIL of the nurſery, like that of the ſeminary, ſhould be rich and deep, and like that alſo ſhould be prepared, by double-diggings and ſuitable meliorations: if not deep and rich by nature, it muſt be made ſo by art, or be wholly rejected as unfit for the purpoſes of a nurſery-ground. For if the roots of the tender plants have not a ſoil they affect, or a ſufficient room to ſtrike in, there will be little hopes of their furniſhing themſelves with that ample ſtock of fibres which is neceſſary to a good plant, and with which to ſupply them is the principal uſe of the nurſery.

The SITUATION of the nurſery is frequently determined by the ſoil, and frequently by local conveniencies: the nearer it is to the garden or ſeminary, the more attendance will probably be given it; but the nearer it lies to the ſcene of planting, the leſs carriage will be requiſite. In whatever ſituation

ſituation the nurſery be placed, it muſt, like the ſeminary, be effectually fenced againſt hares and rabbits.

The BUSINESS OF THE NURSERY conſiſts principally in

PREPARING THE SOIL,	PRUNING,
TRIMMING THE PLANTS,	THINNING,
PUTTING THEM IN,	TAKING-UP, and
KEEPING THEM CLEAN,	PACKING FOR CARRIAGE.

The PREPARATION OF THE SOIL has already been mentioned: too much pains cannot be taken in this department; it is the foundation upon which the ſucceſs of the whole buſineſs greatly depends.

In TRIMMING ſeedlings, layers and ſuckers, for the nurſery, the ramifications of the roots ſhould not be left too long and ſprawling; but *(in this caſe)* ſhould be trimmed off pretty cloſe, ſo as to form a ſnug globular root: by this means the new fibres will be formed immediately round the root of the plant, and may of courſe be eaſily removed with it, and without diſturbing the earth interwoven amongſt them. The tops ſhould in moſt caſes be trimmed quite cloſe up to the leader, or (if aukward or defective) be cut off a little above the root.

In PUTTING-IN ſeedlings, various methods are practiſed: by the *dibble*; by the *ſcoop*; by a ſingle

chop with the *ſpade*, or by two chops, one acroſs the other: by *ſquare holes* made by four chops of the ſpade, bringing up the mould with the laſt: or by *bedding*; a method chiefly made uſe of for quick-ſets. If the ſoil be well-prepared, and the plants properly trimmed, the chief art in putting them in lies in not cramping the fibres of the roots; but, on the contrary, in letting them lie free and eaſy among the mould: and the particular mode, or inſtrument to be made uſe of, depends much upon the ſize of the plants to be put in. This alſo determines, in a great meaſure, the proper *diſtance* between the rows and between plant and plant. Strong ſuckers or layers require larger holes and a greater diſtance than weak ſeedling plants. The propoſed method of cleaning too is a guide to the diſtance: the plow cannot work in ſo narrow a compaſs as the ſpade. The natural tendency of the plant itſelf muſt alſo be conſidered; ſo that few general directions can be given under this head. If we ſay from ſix to twenty-four inches in the rows, with intervals from one to four feet wide, we ſhall comprehend the whole variation of diſtances.

CLEANING THE NURSERY is a buſineſs which muſt not, of all others, be neglected: all plants are enemies to each other. If graſs and weeds are ſuffered to prey upon the ſoil, the young plants will be deprived of their proper nouriſhment and moiſture: in ſhort, it is neceſſary that the nurſery ſhould be

be kept equally clean as the ſeminary, and this as clean as the kitchen-garden: it would be more pardonable to ſuffer the plants to be ſmothered in the ſeed-beds than in the nurſery quarters; for in that caſe only a ſmall part of the expence would be thrown away. Nor is merely keeping the weeds under, the only care in a nurſery: the intervals muſt be kept ſtirred, in order to give air and freedom to the fibres. This may be done either with the ſpade, which is called turning-in; or, if the intervals be wide enough and the nurſery extenſive, with the plow, which is attended with much leſs expence.

The next buſineſs of the nurſery is PRUNING: this is neceſſary to prevent the plants from crouding each other, and to give them ſtem. Shrubs which do not require a ſtem ſhould not be placed in nurſery-rows, but in the quincunx manner, that they may have an equal room to ſpread on every ſide; but foreſt-trees, and trees in general, require ſome length of ſtem; and in giving them this, the leading ſhoot is more particularly to be attended to. If the head be double, one of the ſhoots muſt be taken cloſe off: if it be maimed, or other ways defective, it may be well to cut the plant down to the ground and train a freſh ſhoot; or if the head be taken off ſmooth, immediately above a ſtrong ſide-ſhoot, this will out-grow the crookedneſs, and in a few years become a ſtraight plant.

The time of the plants remaining in the nurſery is determined by a variety of circumſtances, and a ſeaſonable THINNING frequently becomes neceſſary. In this part of the buſineſs there are general rules to go by: the ſhrubby ſpreading tribes ſhould be thinned whenever their branches begin to interfere; and the ſtem-plants, whenever their roots get into a ſimilar ſtate. If either the tops of the one, or the roots of the other, be ſuffered to remain in a ſtate of interference and warfare with each other, the beauty of the ſhrubs will ſoon be deſtroyed, and the thriftineſs of the trees will be checked. If the plants be wanted for planting out, it is fortunate; if not, every alternate plant ſhould be moved to a vacant ground prepared for the purpoſe. If ſuch as ſtand in rows be removed alternately into the intervals, and ſet in the quincunx form, a temporary relief will be gained at a ſmall expence.

Planters in general are not aware of the caution neceſſary in TAKING-UP plants, for the purpoſe of planting them out to ſtand. *In this caſe*, every root and every fibre ought as much as poſſible to be preſerved. No violence ſhould therefore be uſed in this operation. The beſt way is to dig a trench by the ſide of the plant or plants to be taken up; and having undermined the roots let the plant fall of itſelf, or with a very little aſſiſtance, into the trench: if any licentious root or roots ſtill have hold, cut them off with ſome ſharp inſtrument, ſo

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as to jar the main root as little as may be. If the root was properly trimmed before planting, it will now turn out a globular bundle of earth and fibres, the beſt characteriſtic of a well-rooted plant.

When the nurſery lies at a diſtance from the plantations, or when the plants are to be ſent to ſome diſtant place, much depends upon PACKING them up judiciouſly. Valuable plants may be packed in pots or baſkets;—ſtraw may, however, in general be uſed, and will equally preſerve them from froſt in winter and the drought of autumn or ſpring; eſpecially if, in the latter caſe, the ſtraw be occaſionally moiſtened with ſoft water. Large plants ſhould be packed ſingly with as much earth about the roots as conveniency will allow. If a piece of matt be put over the ſtraw, it will ſave ſome trouble in cording, and be more effectual than ſtraw alone.

PLANTING-OUT TREES AND SHRUBS.

ALL that we propoſe in this place is to convey to our readers ſome general ideas of

PREPARING THE SOIL,
TRIMMING AND SORTING THE PLANTS,
PLANTING THEM OUT,
ATTENDING THEM AFTER PLANTING,
CLEANING THE PLANTATION,
PRUNING THE PLANTS, AND
THINNING THEM;—

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in order to avoid uſeleſs repetitions, when we come to ſpeak ſeparately of each individual ſpecies; and to enable ſuch of our readers as are totally unacquainted with the ſubject, to follow us thro' the ALPHABET OF PLANTS with a degree of eaſe and ſatisfaction to themſelves, which, without theſe previous inſtructions, they would not be able to do.

The PREPARATION OF THE GROUND depends in ſome meaſure upon the ſize of the plants. To ſpeak generally upon the ſubject,—For plants under four feet high the ſoil ought to receive a double-digging, or a ſummer's fallow under the plow, or a crop of turnips well-hoed; but, for larger plants, ſeparate holes dug in the unbroken ground are frequently made uſe of; though we cannot by any means recommend the practice. Trees and ſhrubs never thrive better than when they are planted upon *made ground*; for here the fibres rove at large, and the nearer the ſoil of a plantation is brought to the ſtate of made ground; that is to ſay, the more it is broken, and the deeper it is dug, the greater probability there will be of ſucceſs. Plants put in a hole may thrive very well whilſt the fibres have looſe mould to work in; but, whenever they reach the firm unbroken ſides of the hole, they will, except the ſoil be of a very rich loamy nature indeed, receive a check which they will not overcome

overcome for many years. The ſize of the holes, whether in broken or unbroken ground, muſt be in proportion to the roots of the plants to be put in. For large nurſery plants the holes in unbroken ground ſhould not be leſs than two feet deep; and, for plants from four to eight feet high, the holes ought to be made from two to three feet diameter: the different ſtrata ſhould be kept ſeparate; laying the ſod on one ſide of the hole, the corn mould or ſoil on another, and the ſubſtratum on a third; and in this ſtate they ſhould lie ſome weeks before the time of planting.

This, namely the TIME OF PLANTING, varies with the ſpecies of plant, and with the nature of the ſoil. Plants in general may be ſet out either in the autumn or in the ſpring. In a bleak ſituation the latter is generally preferable; provided the planting be not done too late. The latter end of February, and all March, is a very proper ſeaſon for moſt plants: but where the ſcene of planting is extenſive, every fit of open weather, during the ſix winter months, may be embraced. Some plants, however, are partial to particular ſeaſons: theſe peculiarities will be mentioned in their proper places.

It has been already intimated, that when trees and ſhrubs are planted out finally, their *roots* ſhould be left UNTRIMMED. It is uſual, and may be proper, to take off the bruiſed and maimed parts;

parts; but even this ſhould be done with caution. Their *tops*, however, require a different treatment. Foreſt trees and other ſtem-plants may in general be trimmed cloſe, by which means the roots will be able to ſend up a ſufficient ſupply of nouriſhment and moiſture the firſt year, and thereby preſerve the life of the plant: whereas, on the contrary, if a number of ſide-ſhoots be left on, the quantity of leaves and ſhoots becomes ſo great, that the plant probably is *ſtarved* for want of that neceſſary ſupply. This renders the ſucceſs of ſhrubby plants uncertain; and is an argument againſt their paſſing through the nurſery; and, of courſe, in favour of their being moved (when practicable) from the ſeminary into the place in which they are intended to remain. A well-rooted plant, however, if planted in a good mould and a moiſt ſeaſon, will ſupport a conſiderable top; and there is a general rule for trimming of plants: Leave them tops proportioned to their roots; for no doubt the larger the top, provided the root can ſupport it, the quicker progreſs the plant will make: nevertheleſs it is well to be on the ſafer ſide; a ſure though ſlow progreſs is preferable to a dead plant, which is always a reflection upon the planter, and an unſightly incumbrance in the plantation. A judicious planter, whilſt he trims his plants, will at the ſame time SORT them: inſtead of throwing them out of his hand into one heap promiſcuouſly,

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he will lay the weak ill-rooted plants in one place, the middle ſort in another, and the ſtrong well-rooted ones in a third; in order that, when they are planted out, each plant may have a fair and equal chance of riſing; which, without this precaution, cannot be the caſe.

We now come to the operation of PLANTING; which is guided in ſome meaſure by the ſpecies of plantation. If the plants be large and the plantation chiefly ornamental, they ought to be planted out promiſcuouſly in the ſituation in which they are intended to remain; but if the plants be ſmall, and the plantation chiefly uſeful, nurſery-rows ought generally to be preferred. For in this manner the tender plants give warmth to each other; the tranſition is leſs violent than when they are planted out immediately from the nurſery or ſeed-bed ſingly, and at a diſtance from each other: the ground is more eaſily kept clean than where the plants ſtand in the random manner; beſides, the intervals may, whilſt the plants are young, be cropped with advantage: whilſt the remainder of the intended plantation may be kept in an entire ſtate of cultivation until the plants acquire a conſiderable ſize; or, if the whole ground be ſtocked in this nurſery manner, the ſuperfluous plants may in almoſt any country be ſold to great profit. We do not recommend planting theſe nurſery-plantations too thick: four feet between the rows and two feet between

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the plants are convenient diſtances; or if the intervals be ſet out exactly a quarter of a rod wide, namely four feet one inch and an half, and the plants be put in at twenty-four inches and three quarters apart, the calculation of how many plants will be required for an acre or any other given portion of ground, or, on the contrary, how much ground will be neceſſary for a given number of plants, will be made eaſy and certain. The method of putting in the plants in theſe nurſery-rows is this: The ground being brought to a proper ſtate of cultivation, as directed above, the plants trimmed and ſorted, and the rows ſet out, a line is laid along to make the holes by. To aſcertain preciſely the center of each hole, a mark is made in the line (or land-chain, which is not liable to be varied in its length by the weather), and a ſtick or other guide placed where the center of each hole falls. The workmen begin to make the holes by chopping a ring round each ſtake, with the ſpade, of a diameter proportioned to the ſize of the plants, and of a depth equal to that of the cultivated mould. A row of holes being finiſhed, the plants, in this caſe, may be immediately put in, which is done in this manner: One man, or boy, holds the plant upright with its ſtem in the center of the hole, at the ſame time looking along the row to ſee that it ſtand in its proper line, whilſt another fills in the mould; firſt ſpreading the roots and fibres level in the

the bottom of the hole; being careful not to ſuffer any of them to lie in a cramping folded ſtate; but opening them wide, and ſpreading them abroad in the manner of a bird's foot. Whilſt the ſpade-man is bedding the roots in the fineſt of the mould, the perſon who ſteadies the plant ſhould move it gently up and down, in order to work in the mould more effectually among the fibres; which done, they ſhould be preſſed down gently together with the foot; and the treading, if the ſoil be light, ſhould be repeated two or three times, until the hole be filled up level, and the plant firmly fixed at the ſame depth at which it ſtood in the place from whence it was taken: if on trial the hole be found too ſhallow, it muſt be deepened; if too deep, ſome of the rougheſt of the mould muſt be thrown to the bottom, until the roots be brought to their own natural level. The row being finiſhed, the planter walks back along it, and adjuſts ſuch plants as lean or ſtand out of the line, whilſt his helper diſtributes the plants of the next row. In a ſimilar manner the plants are put in when the holes are made in whole ground. The ſods are generally thrown to the bottom of the hole; and if theſe be not ſufficient to raiſe the plant high enough, ſome of the ſubſtratum is mixed with them; or if this be of a very bad quality, ſome of the top ſoil is dug from the intervals and thrown into the hole. The roots are bedded in the beſt of

the

the mould, and the hole rounded up, either with the ſubſtratum or with the ſoil of the interval, ſo as to form a hillock or ſwell round the ſtem of the plant, in order to allow for the ſettling of the broken mould.

Plantations require a cloſe ATTENDANCE AFTER PLANTING; eſpecially in windy weather. Large plants are generally ſtaked; but this is a practice we do not recommend, except for large tranſplanted trees or ſhrubs: but of theſe in the next chapter. Plants, even of ſix or eight feet high, if well-rooted and *firmly* planted, will withſtand a great deal of weather. The plantation however ſhould frequently be gone over, and ſuch plants as have loſt their upright poſture, or are looſe at the roots, ſhould be righted and *rammed*; eſpecially if the ſoil be of a light open texture: indeed, in ſuch a ſoil, it is prudent to ram them at the time of planting, which not only prevents their being miſplaced by the winds, but alſo prevents the drought from reaching the roots ſo ſoon as when the mould is left light and porous. In this caſe, however, it muſt be remembered, that when the plants have got foot-hold, the mould which has been rammed ſhould be looſened with the ſpade, in order to admit a full ſupply of air to the roots, without which no plant can flouriſh. If a continuance of drought ſet in after planting, it will be prudent to WATER the plants; not partially, by pouring a ſmall quantity

tity of water againſt the ſtem of each; but in large quantities poured into a ring made near the outſide of the hole; ſo that the whole maſs of broken earth may be thoroughly moiſtened, without waſhing off the finer mould from the fibres. A ſuperficial watering tantalizes the plants, and leads the fibres towards the ſurface for nouriſhment: the moiſture thus partially given ſoon evaporates, and the diſappointed fibres become expoſed to the parchings of the ſun and wind.

Plantations in rows are beſt CLEANED with the plow. In the ſpring gather two furrows, or if room four furrows, into the middle of the interval: in ſummer ſplit theſe interval-ridges, throwing the mould to the roots of the plants, to ſave them from the drought: in autumn gather them again into the interval; and in winter again return them to the rows to keep out the froſt. If the ſoil be good, and dung can be had, a row of potatoes, cabbages, &c. may be planted in each interval, or turnips ſown over the whole: in either caſe, the inter-ſpaces of the rows ſhould be kept clean hoed or hand-weeded. To be brief, a plantation of this kind ſhould be conſidered, whilſt young, as a *kitchen-garden*, and ought to be treated accordingly.

As the plants increaſe in bulk and ſtature, they will require PRUNING. Much depends upon doing this judiciouſly. If it has been neglected too long, care muſt be had not to do too much at once. The

leader is the principal and firſt object; the ſide-branches may be afterwards taken off gradually, ſo as not to wound the plant too much, nor let too much air at once into the plantation. The time of pruning is generally conſidered to be in autumn or winter, when the ſap is down and the leaves off; but for plants which are not liable to *bleed*, we rather recommend midſummer, as ſhoots taken off at that time are not ſo apt to be followed by freſh ſhoots as thoſe taken off in winter. If the ſhoots be young and ſlender, it is better to *rub* them off than to cut them off clean with a ſharp inſtrument: boughs and ſtrong ſhoots however require an inſtrument, and from young trees they ſhould be taken off as ſmooth and cloſe to the ſtem as poſſible. If a ſtump be left, it will be ſome years before it be grown over, and a flaw, if not a decayed place, will be the conſequence; but if a ſhoot, or even a conſiderable bough of a young growing tree, be taken off level with the bark of the ſtem, the wound will ſkin over the firſt year, and in a year or two more no traces of it will be left. A large bough of an aged full-grown tree requires a different treatment, which will be given under the article HEDGE-ROW TIMBER.

Great judgment is required in THINNING plantations. The ſame rule holds good in nurſery-plantations as in the nurſery itſelf: and the ſame general rule (liable no doubt to many exceptions) may

be

be extended to woodlands and ornamental plantations. But of theſe hereafter: ſuffice it to repeat in this part of our Work, that whenever the roots of plants begin to interfere with each other, their growth from that time is more or leſs checked; and whenever their branches are permitted to claſh, from that time their beauty and elegance are more or leſs injured.

TRANSPLANTING TREES AND SHRUBS.

BY this is meant the removal of trees and ſhrubs, which, having formerly been planted out, have acquired ſome conſiderable ſize. We do not mean to recommend the practice in general terms; but for thinning a plantation, for removing obſtructions, or hiding deformities, or for the purpoſe of raiſing ornamental clumps or ſingle trees expeditiouſly, it may frequently be uſeful, and is univerſally practiſed, though ſeldom with uniform ſucceſs. This is indeed the moſt difficult part of planting, and requires conſiderable ſkill—with great care and attention in applying it.

It is in vain to attempt the removal of a tap-rooted plant (as the oak), which has not previouſly been *tapped*; that is, its tap-root taken off; and not leſs arduous to make a weak-rooted plant of almoſt any ſpecies (the aquatics excepted) ſucceed

with a large top upon it: much therefore depends upon taking-up and trimming trees and ſhrubs for tranſplantation.

Before a tap-rooted plant, which has never been removed from its place of ſemination, can be taken up with propriety, it muſt be tapped in this manner: Dig a trench or hole by the ſide of the plant, large enough to make room to undermine it, in ſuch a manner as to be able to ſever the tap; which done, fill in the mould, and let the plant remain in this ſtate one, two, or three years, according to its ſize and age. By this time the horizontal roots will have furniſhed themſelves with ſtrength and fibres; eſpecially thoſe which were lopped in the excavation; and the plant may be taken up and removed in the ſame manner as if it had been tapped and tranſplanted whilſt a ſeedling, though not with equal ſafety; for plants which have never been removed have long branching roots, and the *fibres* lie at a diſtance from the body of the plant; whilſt thoſe which have been taken up and have had their roots trimmed when young are provided with fibres, which, being leſs remote from the ſtem, may be taken up with the plant, and conveyed with it to its new ſituation. This naturally leads to what may perhaps be called a *refinement* in taking up large plants for tranſplantation; namely, lopping the whole, or a part of the horizontal roots, twelve months or a longer time before the plant be taken up;

up; leaving the downward roots, and (if neceſſary) part of the horizontal ones, to ſupport the plant until the time of removal *. It would be needleſs to add, that in taking up plants in general, the greater length of root and the greater number of fibres there is taken up, the more probable will be the ſucceſs. It is alſo a circumſtance well underſtood, that too much earth cannot be retained among the fibres.

The plant being thrown down, and the roots diſentangled, it is proper, before it be removed from its place, to trim the top, in order that the carriage may be lightened. In doing this, a conſiderable ſhare of judgment is requiſite: to head it down in the pollard manner is very unſightly; and to trim it up to a mere May-pole, or ſo as to leave only a ſmall broom-like head at the top, is equally deſtructive of its beauty. The moſt rational, the moſt *natural*, and, at the ſame time, the moſt elegant, manner of doing this, is to *trim the boughs* in ſuch a manner as to form the head of the plant into a conoid, in reſemblance of the natural head of the Lombardy poplar, and of a ſize proportioned to the *ability of the root*. Whoever was the inventor of this method of trimming the heads of trees, deſerves infinite credit: it only wants to be known in order to be approved; and we are happy to ſee it growing into univerſal practice.

* In this caſe the head ought at the ſame time to be trimmed, and the plant, if expoſed, ſupported.

The mode of carriage reſts wholly with the ſize of the plant: if ſmall, it is beſt carried by hand, either upon the ſhoulder, or upon hand-ſpikes:—if larger, two ſledges, one for the root, the other for the head, may be uſed:—if very large, and the ball of earth heavy, a pair of high timber-wheels, or a timber-carriage, will be found neceſſary.

The hole muſt be made wide enough to admit the root of the plant, with a ſpace of a foot at leaſt all round it, for the purpoſe of filling in the mould with propriety; ſo that if the tree was taken up with a root of ſix feet diameter, the hole muſt be made of the diameter of eight or nine feet, and of a depth ſufficient to admit of the tree's being ſeated (when the mould is ſettled) at its natural depth, as alſo to receive the ſods, and other rough unbroken mould, at leaſt a foot thick underneath its root.

The method of planting depends upon the ſtate of the root, and the temperature of the mould and the ſeaſon. If the root be well furniſhed with fibres and mould, and the ſoil be moiſt from ſituation, or moiſtened by the wetneſs of the ſeaſon, no artificial preparation is neceſſary. The bottom of the hole being raiſed to a proper height, and the tree ſet upright in the center of it, the mould may be filled in; being careful to trim it well in amongſt the roots, and to bed the fibres ſmoothly amongſt it; treading every layer firmly, and, with a carpenter's rammer, filling every crevice and vacancy among

among the roots, ſo that no ſoft place nor hollowneſs remain; and proceed in this manner until the hole be filled, and a hillock raiſed round the plant to allow for its ſettling. But if the roots be naked of mould and thin of fibres, and the ſoil, the ſituation, and the ſeaſon be dry, or if any other doubt or ſcruple, with reſpect to a probability of ſucceſs, ariſe, we recommend in the ſtrongeſt terms the following method: The requiſite depth of the hole being aſcertained, and its bottom raiſed to a proper height, add a conſiderable quantity of the fineſt mould, pour upon it water ſufficient to moiſten it thoroughly, and work them up together into a mortar-like conſiſtency: having ſpaded out a principal part of this paſte, and laid it in heaps by the ſide of the hole, ſpread the remainder thin over the bottom, and ſet the plant upon it: with the other part of the paſte cover up the wounded parts, and the fibres; and this done, fill in the remainder of the mould, as above directed. If the tranſplantation be done in autumn, it will require nothing farther at that time; but, if made in the ſpring, waterings will almoſt immediately be wanted. Therefore, at once, draw a ring near the outſide of the hole, and in the bottom of its channel make ſix, eight, or ten holes, (by means of a ſpike and beetle) at equal diſtances, and of a depth equal to that of the roots of the plant. Theſe holes will not only convey water, but air alſo, to the immediate region

in which they are both indiſpenſibly neceſſary to the health of the plant. We have been the fuller in our inſtructions relative to tranſplanting, as being a proceſs little underſtood by profeſſional men. Every nurſery-man, and almoſt every kitchen-gardener, can raiſe, train, and plant out ſeedling and nurſery plants; but the removal of trees ſeldom occurs in their practice; and we have met with very few men indeed who are equal to the taſk. The foregoing rules are the reſult of experience.

Having thus attempted to give our readers a general knowledge of what may be called the manual operations of planting, we will next enter into particulars, and endeavour to complete his ſkill in the buſineſs of the nurſery, by treating ſeparately of each reſpective tree and ſhrub adapted to the purpoſe of uſeful and ornamental planting.

AN

AN ALPHABET of PLANTS,

PROPER FOR

USEFUL and ORNAMENTAL PLANTATIONS;

ARRANGED UNDER THE

GENERIC NAMES of LINNEUS:

WITH A

DESCRIPTION,

AND THE

PROPAGATION,

Of EACH SPECIES.

INTRODUCTION.

FOR a Book of Reference the DICTIONARY form is the moſt convenient. This part of our Work is entirely of that nature; we have therefore adopted an alphabetical arrangement. Our reaſons for making uſe of the Linnean names as the ground-work of this arrangement, are manifold: a great number of the plants here treated of have no Engliſh generic name belonging to them; yet it was neceſſary to that conciſeneſs and ſimplicity which is the baſis of our plan, to arrange them

them agreeably to their reſpective genera; becauſe, in general, the individuals of the ſame genus have ſimilar appearances and ſimilar propenſities, which being placed together in one point of view, their deſcription and mode of culture are rendered infinitely more eaſy and compendious than they could poſſibly be, if treated of ſeparately under diſtinct and detached ſpecies. Beſides, even many of the ſpecies now common in our ornamental grounds and ſhrubberies have not yet had any Engliſh name given to them; and there are many more, whoſe Engliſh names are local and unſettled; whereas the Linnean names are the ſame every where, and are known to the whole world *.

We do not mean to enter into the diſpute about the Sexual Syſtem of Linneus: it is enough for our purpoſe that it is at preſent the prevailing ſyſtem; and that, being founded in nature, its principles can never be overturned: we are nevertheleſs ſo far from thinking it a *perfect* ſyſtem, that we believe it capable of very great improvement: at preſent, however, it is our buſineſs to take it as we find it; and for the uſe of ſuch of our readers as are unacquainted with its principles, it is proper that we ſhould here give its outline.

Every PERFECT FLOWER has four principal parts, which in general are obvious to the naked eye;

* An alphabet of Engliſh names will be given in the general Index to the work.

namely,

namely, the CALYX, or outer guard; the COROLLA, or coloured leaves; the STAMINA; and the PISTILLUM. The calyx is evident in the moſs-roſe, being thoſe elegant rough leaves which incloſe the bluſhing beauties of the flower: it is alſo conſpicuous in the primroſe, being that angular tube out of which the more delicate parts of the flower iſſue. The corolla of the primroſe is that yellow ornament which by unbotanical obſervers is itſelf conſidered as the flower. The ſtamina are conſpicuous in moſt flowers, and are diſtinguiſhed by the farina or duſt with which they are covered. In the primroſe they proceed from the inſide of the tube of the corolla; and, when matured, form themſelves into a circle round the top of the tube. The piſtillum, in the primroſe, is that delicate white pillar, which, riſing from the bottom of the tube of the corolla, ſhews its flatted top in the middle of the ſtamina, and in the center of the flower. According to Linneus, the calyx is an expanſion of the outer bark; the corolla, of the inner bark; the ſtamina, of the wood; and the piſtillum, of the pith of the plant; and according to his Sexual Syſtem, the ſtamen is the male, and the piſtillum the female, part of generation.

Whether this laſt is or is not a fact in nature, has been the ſubject of much diſpute. But, to the FLORAL SYSTEM, it is, we are humbly of opinion, a matter of no great import. The parts themſelves,

and

and not their functions, are the basis of the Linnean System; and we are clear in our opinion, that if that great man had considered his System as being, what it in reality is, merely FLORAL, without having unfortunately clogged it with the idea of SEXUAL, he would have saved himself a host of enemies, and would beyond a doubt have rendered his System infinitely more simple and scientific, and consequently more useful, than it really is. But it is now too late to regret: his System is established; and himself no more. Having however said thus much, it would be unpardonable in us not to add, that whether we consider his genius, his perseverance, or the System he has formed, notwithstanding its imperfections, he died one of the greatest characters the world has known.

The VEGETABLE KINGDOM is divided by LINNEUS into twenty-four CLASSES: these Classes are subdivided into ORDERS; the Orders into GENERA; the Genera into SPECIES; and the Species into VARIETIES.

His principle of Classification is seen in the following

"KEY

" KEY OF THE SEXUAL SYSTEM.

MARRIAGES of PLANTS.

Floreſcence.

- *PUBLIC MARRIAGES.*
  Flowers viſible to every one.
  - In one Bed.
    Huſband and wife have the ſame bed.
    All the flowers hermaphrodite: ſtamens and piſtils in the ſame flower.
    - Without Affinity.
      Huſbands not related to each other.
      Stamens not joined together in any part.
      - With Equality.
        All the males of equal rank.
        Stamens have no determinate proportion of length.
        1. ONE MALE.
        2. TWO MALES.
        3. THREE MALES.
        4. FOUR MALES.
        5. FIVE MALES.
        6. SIX MALES.
        7. SEVEN MALES.
        8. EIGHT MALES.
        9. NINE MALES.
        10. TEN MALES.
        11. TWELVE MALES.
        12. TWENTY MALES.
        13. MANY MALES.
      - With Subordination.
        Some males above others.
        Two ſtamens are always lower than the others.
        14. TWO POWERS. | 15. FOUR POWERS.
    - With Affinity.
      Huſbands related to each other.
      Stamens cohere with each other, or with the piſtil.
      16. ONE BROTHERHOOD.
      17. TWO BROTHERHOODS.
      18. MANY BROTHERHOODS.
      19. CONFEDERATE MALES.
      20. FEMININE MALES.
  - In Two Beds.
    Huſband and wife have ſeparate beds.
    Male flowers and female flowers in the ſame ſpecies.
    21. ONE HOUSE.
    22. TWO HOUSES.
    23. POLYGAMIES.
- Clandestine Marriages.
  Flowers ſcarce viſible to the naked eye.
  24. CLANDESTINE MARRIAGES."

His CLASSES are:

I. ONE MALE *(Monandria.)*

One huſband in marriage.

One ſtamen in an hermaphrodite flower.

II. TWO MALES. *(Diandria.)*

Two huſbands in the ſame marriage.

Two ſtamens in an hermaphrodite flower.

III. THREE MALES. (*Triandria.*)

Three huſbands in the ſame marriage.

Three ſtamens in an hermaphrodite flower.

IV. FOUR MALES. *(Tetrandria.)*

Four huſbands in the ſame marriage.

Four ſtamens in the ſame flower with the fruit.

(If the two neareſt ſtamens are ſhorter, it is referred to Claſs 14.)

V. FIVE MALES. *(Pentandria.)*

Five huſbands in the ſame marriage.

Five ſtamens in an hermaphrodite flower.

VI. SIX MALES. *(Hexandria.)*

Six huſbands in the ſame marriage.

Six ſtamens in an hermaphrodite flower.

(If the two oppoſite ſtamens are ſhorter, it belongs to Claſs 15.)

VII. SEVEN MALES. (*Heptandria.*)

Seven huſbands in the ſame marriage.

Seven ſtamens in the ſame flower with the piſtil.

VIII. EIGHT MALES. *(Octandria.)*

Eight huſbands in the ſame marriage.

Eight ſtamens in the ſame flower with the piſtil.

IX. NINE MALES. (*Enneandria.*)

Nine huſbands in the ſame marriage.

Nine ſtamens in an hermaphrodite flower.

X. TEN MALES. (*Decandria.*)

Ten huſbands in the ſame marriage.

Ten ſtamens in an hermaphrodite flower.

XI. TWELVE MALES. (*Dodecandria.*)

Twelve huſbands in the ſame marriage.

Twelve ſtamens to nineteen *in an hermaphrodite flower.*

XII.

XII. TWENTY MALES. (*Icoſandria.*)

Generally twenty huſbands, often more.

Stamens inſerted on the calyx (not on the receptacle *) *in an hermaphrodite flower.*

XIII. MANY MALES. (*Polyandria.*)

Twenty males or more in the ſame marriage.

Stamens inſerted on the receptacle, *from* 20 *to* 1000 *in the ſame flower with the piſtil.*

XIV. TWO POWERS. (*Didynamia.*)

Four huſbands, two taller than the other two.

Four ſtamens: of which the two neareſt are largeſt.

XV. FOUR POWERS. (*Tetradynamia.*)

Six huſbands, of which four are taller.

Six ſtamens: of which four are longer, and the two oppoſite ones ſhorter.

XVI. ONE BROTHERHOOD. (*Monadelphia.*)

Huſbands, like brothers, ariſe from one baſe.

Stamens are united by their filaments † *into one body.*

XVII. TWO BROTHERHOODS. (*Diadelphia.*)

Huſbands ariſe from two baſes, as if from two mothers.

Stamens are united by their filaments into two bodies.

XVIII. MANY BROTHERHOODS. (*Polyadelphia.*)

Huſbands ariſe from more than two mothers.

Stamens are united by their filaments into three or more bodies.

XIX. CONFEDERATE MALES. (*Syngeneſia.*)

Huſbands joined together at the top.

Stamens are connected by the anthers ‡ *forming a cylinder (ſeldom by the filaments).*

XX. FEMININE MALES. (*Gynandria.*)

Huſbands and wives growing together.

Stamens are inſerted in the piſtils (not on the receptacle).

XXI. ONE HOUSE. (*Monoecia.*)

Huſbands live with their wives in the ſame houſe, but have different beds.

Male flowers and female flowers are on the ſame plant.

* "The baſe by which the parts of the fructification are connected."

† The *thread* or body of the ſtamen.

‡ The *tips* or heads of the ſtamen.

XXII. TWO HOUSES. (*Dioecia.*)
Huſbands and wives have different houſes.
Male flowers and female flowers are on different plants.

XXIII. POLYGAMIES. (*Polygamia.*)
Huſbands live with wives and concubines.
Hermaphrodite flowers, and male ones, or female ones in the ſame ſpecies.

XXIV. CLANDESTINE MARRIAGES. (*Cryptogamia.*)
Nuptials are celebrated privately.
Flowers concealed within the fruit, or in ſome irregular manner."

His ORDERS are diſtinguiſhed by different parts of the flowers, according to the Claſſes. Thoſe of the firſt thirteen Claſſes are taken from the number of females or piſtils, (reckoning "from the baſe of the ſtyle *; but if there is no "ſtyle, the calculation is made from the number "of ſtigmas" †); as ONE FEMALE (*Monogynia*), TWO FEMALES (*Digynia*), THREE FEMALES, (*Trigynia*), &c. Thoſe of the ſixteenth, ſeventeenth, eighteenth, twentieth, twenty-firſt, and twenty-ſecond Claſſes are taken from the number of males, or ſtamens. Thoſe of the fourteenth are diſtinguiſhed by SEEDS NAKED (*Gymnoſpermia*), and SEEDS CLOATHED (*Angioſpermia*). Thoſe of the fifteenth, by the formation of the ſeed-veſſel, or pod; as, WITH SILICLE (*Siliculoſa*), and, WITH SILIQUE (*Siliquoſa*). Thoſe of the twenty-third are ONE HOUSE (*Monoecia*); TWO HOUSES (*Dioecia*); and THREE HOUSES (*Trioecia*). Thoſe of the twen-

* The *ſhaft* or body of the piſtil.
† The *ſummits* or heads of the piſtil.

ty-fourth

ty-fourth are FERNS, MOSSES, FLAGS, and FUNGUSSES. Thoſe of the nineteenth Claſs (conſiſting chiefly of plants with compound diſcous flowers, as the thiſtle, dandelion, &c.) are, EQUAL POLYGAMY (*Polygamia Equalis*); SUPERFLUOUS POLYGAMY (*Polygamia Superflua*); FRUSTRANEOUS POLYGAMY (*Polygamia Fruſtranea*); NECESSARY POLYGAMY (*Polygamia Neceſſaria*); SEPARATE POLYGAMY (*Polygamia Segregata*); MONOGAMY (*Monogamia*). The following is Linneus's account (*literally* as it ſtands in the Litchfield tranſlation) of the Orders laſt mentioned.

EQUAL POLYGAMY conſiſts of many marriages with promiſcuous intercourſe.

That is, *of many florets furniſhed with ſtamens and piſtils. The flowers of theſe are vulgarly called* Floſculous.

SPURIOUS POLYGAMY, where the beds of the married occupy the diſk, and thoſe of the concubines the circumference.

That is, *the hermaphrodite florets occupy the diſk, and the female florets without ſtamens ſurround the border, and that in three manners:*

(*a*) SUPERFLUOUS POLYGAMY, when the married females are fertile, thence the concubines ſuperfluous.

That is, *when the hermaphrodite flowers of the diſk are furniſhed with ſtigmas, and produce ſeeds; and the female flowers alſo, which conſtitute the circumference, produce ſeeds likewiſe.*

(*b*) FRUSTRANEOUS POLYGAMY, when the married females are fertile, and the concubines barren.

That is, *when the hermaphrodite flowers of the diſk are furniſhed with a ſtigma, and produce ſeeds; but the florets which conſtitute the circumference having no ſtigma, produce no ſeeds.*

(*c*) NECESSARY POLYGAMY, when the married females are barren, and the concubines fertile.

That is, *when the hermaphrodite flowers, from the defect of the ſtigma of the piſtil, produce no ſeed; but the female flowers in the circumference produce perfect ſeeds.*

(*e*) SEPARATE POLYGAMY, when many beds are ſo united that they conſtitute one common bed.

That is, *when many flower-bearing calyxes are contained in one common calyx, ſo as to conſtitute one flower.*

His GENERA are taken from the conſtruction of the parts of fructification. All plants, whether herbs, ſhrubs, or trees, whoſe flowers and ſeeds correſpond as to figure and diſpoſition, are of the ſame GENUS.

His SPECIES are diſtinguiſhed by the leaves, and other more permanent parts of the plant. Or, ſpeaking with greater preciſion, the SPECIES is determined by the nature and property of the ſeed: for, let the exterior of a plant, or tribe of plants, be what it may, if the ſeed do not produce near reſemblances of the parent ſtock, but plants whoſe appearances or properties are different from it (as in the caſe of apples, pears, &c.); ſuch plants are not conſidered as forming a diſtinct SPECIES, but are properly deemed VARIETIES (of ſome *natural ſpecies*), ariſing from cultivation, or ſome fortuitous circumſtance.

ALPHABET OF PLANTS.

ACER.

LINNEAN Claſs and Order, *Polygamia Monoecia:* Male flowers containing eight ſtamens, and hermaphrodite flowers containing eight ſtamens and one piſtil, upon the ſame plant. There are Eleven SPECIES: Ten of which are natives of, or have been introduced into, this country.

1. ACER *Pſeudo-platanus:* The SYCAMORE; *a tall deciduous tree*; native of the continent of Europe, but doubtful whether or not of this iſland.

2. ACER *Campeſtre:* The COMMON MAPLE; *a low deciduous tree*; common in our woods and hedges.

3. ACER *Negundo:* the ASH-LEAVED MAPLE; *a deciduous tree*; native of Virginia and Carolina.

4. ACER *Platanoides:* the NORWAY MAPLE; *a deciduous tree*; native of Norway and the north of Europe.

5. ACER *Monſpeſulanum:* the MONTPELIER MAPLE; *a low deciduous tree*; growing common about Montpelier.

6. ACER *Creticum:* the CRETAN MAPLE; *a low deciduous tree*; native of the Eaſt.

7. ACER *Rubrum:* the SCARLET MAPLE; *a deciduous tree*; native of Virginia and Penſylvania.

8. ACER *Saccharinum:* the SUGAR MAPLE; *a deciduous tree*; native of Penſylvania.

9. ACER *Tartaricum*: the TARTARIAN MAPLE; *a low deciduous tree*; native of Tartary.

10. ACER *Pennſylvaticum:* the PENNSYLVANIAN MAPLE; or the MOUNTAIN MAPLE; *a tall deciduous ſhrub*; native of Pennſylvania.

1. The SYCAMORE. This tree grows to a great height and ample ſize, throwing out a wide-ſpreading top. Its leaves are vine-ſhaped; and, on their firſt appearance, are of a pleaſant green; but their beauty ſoon goes off, being liable to be perforated and disfigured by inſects during the ſummer months, which reduces the value of the Sycamore as an *ornamental:* it has however, long been conſidered as a *timber-tree* in this country, having been much uſed by the turners for wooden bowls, diſhes, trenchers, &c.; but, ſince the cuſtom of uſing earthen ware has become ſo prevalent, its value for this purpoſe is greatly decreaſed. Nevertheleſs, near the ſea-coaſt it may be planted with advantage, as it is known to withſtand the attacks of the ſea-air with peculiar hardineſs. HANBURY ſays, The Sycamore being wounded exudes a great quantity of liquor, of which is made good wine. There are two *Varieties* of the Sycamore: one with broad leaves and large keys; the other with variegated leaves.

The PROPAGATION of the Sycamore is very eaſy. In the autumn, when the keys are ripe, they may be gathered, and in a few days after ſown, about an inch and an half deep, in beds of common mould. In the ſpring the plants will appear, and make a ſhoot about a foot and a half by the autumn following, if the ground of the ſeminary be tolerably good, and they are kept clean from weeds. The ſpring after they come up, they ſhould be planted in the nurſery, in rows two feet and a half aſunder, and their diſtance in the rows muſt be one foot and an half. Here they may remain till they are big enough to plant out finally, with no farther trouble than taking off unſightly ſide-branches, and ſuch as have a tendency to make the tree forked, except digging between the rows, which muſt always be done every winter. This tree will grow upon almoſt any ſoil.

2. The COMMON MAPLE is too well known to need a deſcription. It is of much humbler growth than the Sycamore; and is by no means ornamental; nor is its timber of a good quality, being peculiarly brittle: The texture however is cloſe and firm, and it is in good eſteem amongſt the turners. In the vale of Gloceſter, where oak timber is ſcarce, Maple is uſed for gate-ſtuff and other purpoſes of huſbandry; and ſometimes ſkrews for cyder-preſſes are made of this wood. But the principal value of the Maple, is for *underwood:* it is of quick growth, and affords good fuel.

The

The method of PROPAGATION is the ſame as that of the Sycamore; and, like it, the Maple will grow in almoſt any ſoil and ſituation.

3. The ASH-LEAVED MAPLE grows to a large timber-tree: its leaves are of a pale green, and well adapted to give variety of tint; but HANBURY ſays, this tree is not proper to be planted in expoſed ſituations, the branches being ſubject to be ſplit off by the winds. Its uſes are ſimilar to thoſe of the Sycamore.

It may be PROPAGATED from the keys, which are perfected in this country; or by layering; or from cuttings, planted in a moiſt ſituation, in autumn.

4. The NORWAY MAPLE. This alſo grows to a large timber-tree. Its leaves are of a ſhining green colour, and are as large or larger than thoſe of the Sycamore; their edges are acutely and more beautifully indented; they are not ſo liable to be eaten by inſects in the ſummer; and "in the autumn they die to a golden yellow colour, which cauſes a delightful effect at that ſeaſon, when the different tints of the decaying vegetable world are diſplayed." The flowers are alſo beautiful; they come out early in the ſpring, are of a fine yellow colour, and ſhew themſelves to advantage before the leaves come out. They are frequently ſucceeded by keys, which ſometimes arrive at maturity in this climate. There is a *Variety* with ſtriped leaves.

The Norway Maple may be PROPAGATED from ſeed, as the Sycamore; it may alſo be raiſed by layers, and cuttings, planted in a moiſt ſoil.

5. MONTPELIER MAPLE grows to about twenty feet high, and is a very beautiful tree. The leaves are compoſed of three lobes, are of a ſhining green, a thickiſh ſubſtance, and retain their verdure later in the year than moſt of the other ſorts. The flowers come out in the ſpring, but have very little beauty; their blow is ſoon over, and ſometimes they are ſucceeded by ſeeds, which come to perfection in our gardens.

6. CRETAN MAPLE. This grows to about the height of the former. The leaves are downy, compoſed of three lobes, and grow oppoſite to each other on long downy footſtalks. The flowers come out in the ſpring, are inconſiderable to the floriſt, and are very ſeldom ſucceeded by good ſeeds in England.

7. SCARLET-FLOWERING MAPLE. Of this there are two ſorts; called, 1. *Virginian ſcarlet-flowering Maple*; and, 2. *Sir Charles Wager's Maple*. Both of theſe are propagated for the ſake of the flowers, which are of a ſcarlet colour, and come out early in the ſpring. The leaves are compoſed each of five ſharp-pointed lobes, which are ſlightly indented or ſerrated: They are ſmooth, of a pale green on their upper ſurface, glaucous * underneath; and they grow on long, ſimple, taper, reddiſh footſtalks. The flowers come out in cluſters from the ſide of the branches. They appear in April, and the ſeeds ripen in June. The ſort called *Sir Charles Wager's* produces larger cluſters of flowers than the others; on which account it is in moſt eſteem.

8. SUGAR MAPLE is a large-growing tree; will arrive at the height of forty feet; and has broad thin leaves, divided into five principal parts; which are again indented or cut at the edges into ſeveral acute ſegments. Their ſurface is ſmooth, of a light green colour, whitiſh underneath; and they grow on pretty long footſtalks. The flowers come out in the ſpring, about the time of the Norway Maple; and they are ſucceeded by long keys, which ſometimes ripen in England. In America, the inhabitants tap this tree in the ſpring, boil the liquor, and the fœces afford a uſeful ſugar. The Sycamore, the Aſh-leaved and the Norway Maples alſo abound with a ſaccharine juice, from which there is no doubt but a uſeful ſugar might be prepared.

9. TARTARIAN MAPLE will grow to upwards of twenty feet high. The leaves are heart-ſhaped, undivided, and their edges are unequally ſerrated. The flowers come out from the wings of the leaves, in longiſh bunches; they appear early in the ſpring; and ſometimes are ſucceeded by ripe ſeeds in our gardens.

10. MOUNTAIN MAPLE. The *ſtalks* of this ſhrub are ſlender, covered with a whitiſh bark, ſend forth ſeveral red branches, and grow about fifteen feet high. The leaves are three-lobed, pointed, and are unequally and ſharply ſerrated. The flowers come out in longiſh bunches, in the ſpring: They are of a greeniſh yellow colour; and are ſucceeded by ſeeds which (like thoſe of the Norway Maple) generally fall off before they are ripe.

Theſe ſorts are all PROPAGATED, 1. by the ſeeds; but as they

* *Glaucous*, of a ſea-green colour.

do not always ripen in this country, the beſt way will be to procure them from the places where they naturally grow. A cool ſhady part of the ſeminary ſhould be appropriated for the purpoſe; the mould ſhould be made fine; beds ſhould be marked out four feet wide, and in length proportionable to the quantity; and in theſe the ſeeds ſhould be regularly ſown, ſifting over them about half an inch of the fineſt mould. When the plants come up, they muſt be kept clean from weeds, and frequently watered; and this work muſt be duly attended to all ſummer. The ſpring following, the ſtrongeſt may be drawn out, and planted in the nurſery, in rows two feet aſunder, and at the diſtance of a foot from each other in the rows; leaving the others in the ſeminary to gain ſtrength. The ſpring following they alſo muſt receive the ſame culture; and in the nurſery they may remain, with no other trouble than keeping the ground clean from weeds in the ſummer, digging between the rows in the winter, and taking off all ſtrong and irregular ſide-ſhoots, till they are planted out. Trees raiſed from ſeeds will grow faſter, and arrive at greater height, than thoſe raiſed from layers; but they will not produce ſuch quantities of flowers; which makes the latter method more eligible for thoſe who want theſe plants for a low ſhrubbery.

2. By layers all the ſpecies of this genus are to be propagated; though it is never practiſed for the Common Maple and the Sycamore. The young ſhoots may be at any time laid down in the autumn, winter, or early in the ſpring. By the autumn following, they will have ſtruck root, and become good plants; when the ſtrongeſt may be ſet out in the places where they are to remain; whilſt the weakeſt may be planted in the nurſery, like the ſeedlings, for a year or two, to gain ſtrength.

3. By cuttings alſo theſe trees are to be propagated: But this method is chiefly practiſed on the Aſh-leaved and Norway Maples, which more readily take root this way. The cuttings ſhould be the bottom parts of the laſt year's ſhoots: They ſhould be taken off early in October, and planted in rows in a moiſt ſhady place. The ſpring and ſummer following, they muſt be duly watered as often as dry weather makes it neceſſary, and be kept clean from weeds. By the autumn they will be fit to remove into the nurſery; though if the cuttings are not planted too cloſe, they may remain in their ſituation for a year or two longer, and then be ſet out finally, without the trouble of being previouſly planted in the

nurſery. 4. By budding, grafting, and inarching likewiſe Maples are to be propagated: But the other methods being more eligible, theſe are never practiſed, except for the variegated ſorts and the large broad-leaved kind. The latter is to be continued no otherwiſe than by budding it on ſtocks of the common Sycamore; for the ſeeds, though ſo large themſelves, when ſown afford you only the common Sycamore in return.

Seeds of the variegated kinds, however, when ſown will produce variegated plants in return; which renders the propagation of theſe ſorts very expeditious, where plenty of ſeeds may be had. Where theſe are not to be obtained, in order to propagate theſe varieties by budding, let ſome plants of the common Sycamore, one year old, be taken out of the ſeminary, and ſet in the nurſery in rows a yard aſunder, and the plants about a foot and a half diſtance from each other in the rows: Let the ground be kept clean from weeds all ſummer, and be dug, or, as the gardeners call it, *turned in*, in the winter; and the ſummer following the ſtocks will be of a proper ſize to receive the buds, which ſhould be taken from the moſt beautifully-ſtriped branches. The beſt time for this work is Auguſt; becauſe if it is done earlier, the buds will ſhoot the ſame ſummer; and when this happens, a hard winter will infallibly kill them. Having, therefore, budded your ſtocks the middle or latter end of Auguſt, with the eyes or buds fronting the north, early in October take off the baſs matting, which before this time will have confined the bark and pinched the bud, but not ſo as to hurt it much. Then cut off the ſtock juſt above the bud, and dig the ground between the rows. The ſummer following, keep the ground clean from weeds; cut off all natural ſide-buds from the ſtock as they come out; and by autumn, if the land is good, your buds will have ſhot forth, and formed themſelves into trees five or ſix feet high. They may be then removed into the places where they are deſigned to remain; or a few of them only may be drawn out, leaving the others to be trained up for larger ſtandards, to ſerve for planting out in open places, or ſuch other purpoſes as ſhall be wanting.

The Striped Norway Maple ſhould be budded on ſtocks of its own kind; for on theſe they take beſt, and both kinds are not very liable to run away from their colours. Variegated plants in general muſt be planted in poor, hungry, gravelly, or ſandy ſoils, to feed the diſeaſe which occaſions theſe beautiful ſtripes,

and

and cauſe it to be more powerful. But theſe trees ſhew their ſtripes in greater perfection in a good ſoil: The plant, though in ſickneſs, has the appearance of health; the ſhoots are vigorous and ſtrong; the leaves are large, leſs liable to be hurt by inſects; and the ſtripes appear more perfect, natural, and delightful, than thoſe on ſtunted trees growing on a poor ſoil.

Æ S C U L U S.

LINNEAN Claſs and Order, *Heptandria Monogynia:* Each flower contains ſeven *or* eight males and one female *: There are only two SPECIES:

1. ÆSCULUS *Hippo-caſtanum:* The HORSE-CHESNUT; *a deciduous tree*; native of Aſia.

2. ÆSCULUS *Pavia:* The SCARLET ESCULUS, or SCARLET-FLOWERING HORSE-CHESNUT; *a tall deciduous ſhrub*; native of Carolina, the Brazils, and ſeveral parts of the Eaſt.

1. HORSE-CHESNUT. This is a large noble-looking tree; growing to ſeventy or eighty feet high, and throwing out its branches to a conſiderable width; yet forming a cloſe thickſet head; which, if left to nature, takes a moſt beautifully-ſtriking parabolic form. Its leaves are large, palmated, and of a dark-green colour: they appear very early in the ſpring; their buds ſometimes beginning to ſwell ſo early as Chriſtmas, and anticipate the pleaſures of the coming ſpring. Its flowers are ſingularly beautiful, ſtanding in large ſpikes thick among the leaves. This tree is peculiar in a quick formation of its ſhoots, which are frequently perfected in leſs than three weeks from the time of foliation; "in which time," ſays MILLER, "I have meaſured ſhoots a foot and a half long with their leaves fully expanded." For ſingle trees the Horſe-Cheſnut ſtands, amongſt the *ornamental* tribe, next to the oak; and in the ſpring of the year, when its flowers are out, we know no tree equal to it in

* The Æſculus is one of the defective genera of Linneus. The *Pavia* having eight males in each flower, belongs properly to the eighth Claſs.

grandeur.

grandeur. It is improper however to be planted near gardens or kept walks, as it ſheds its leaves early in autumn, and, being large and numerous, they create a diſagreeable litter. The *uſes* of the Eſculus are few: its timber is of an inferior kind, and its fruit of no great eſtimation: deer are ſaid to affect it much; and MILLER ſays, "in Turkey the nuts of this tree are ground and mixed with the provender for their horſes, eſpecially thoſe which are troubled with coughs or are broken-winded, in both which diſorders they are accounted very good." HANBURY tells us, that ſwine will fatten upon them; but does not ſay how they are to be prepared. We have known them offered to hogs raw, alſo boiled, as likewiſe baked in an oven, but without ſucceſs.

The Horſe-Cheſnut is PROPAGATED from the nuts: In autumn, therefore, when they fall, a ſufficient quantity ſhould be gathered. Theſe ſhould be ſown ſoon afterwards in drills, about two inches aſunder. If the nuts are kept till ſpring, many of them will be faulty; but where the ſeminary-ground cannot be got ready before, and they are kept ſo long, it may be proper to put them in water, to try their goodneſs: The good nuts will ſink, whilſt thoſe which are faulty will ſwim; ſo that by proving them this way you may be ſure of good nuts, and have more promiſing hopes of a crop. In the ſpring the plants will come up; and when they have ſtood one year they may be taken up, their tap-roots ſhortened, and afterwards planted in the nurſery. When they are of ſufficient ſize to be planted out finally, they muſt be taken out of the nurſery with care, the great ſide-ſhoots and the bruiſed parts of the roots ſhould be taken off, and then planted in large holes level with the ſurface of the ground, at the top of their roots; the fibres being all ſpread and lapped in the fine mould, and the turf alſo worked to the bottom. A ſtake ſhould be placed to keep them ſafe from the winds, and they muſt be fenced from the cattle till they are of a ſufficient ſize to defend themſelves. The beſt ſeaſon for all this work is October. After the trees are planted, neither knife nor hatchet ſhould come near them; but they ſhould be left to Nature to form their beautiful parabolic heads, and aſſume their utmoſt beauty.

The Horſe-Cheſnut, like moſt other trees, delights moſt in good fat land; but it will grow exceedingly well on clayey and marley grounds.

MILLER

Miller ſays, "when theſe trees are tranſplanted their roots ſhould be preſerved as entire as poſſible, for they do not ſucceed well when torn or cut; nor ſhould any of the branches be ſhortened, for there is ſcarce any tree which will not bear amputation better than this; ſo that when any branches are by accident broken, they ſhould be cut off cloſe to the ſtem, that the wound may heal over."

2. The Scarlet Esculus grows to about fifteen or ſixteen feet high; and there is a delicacy in this tree that makes it deſirable. The bark of the young ſhoots is quite ſmooth, and the growing ſhoots in ſummer are of a reddiſh hue. The leaves are palmated, being pretty much like thoſe of the Horſe-Cheſnut, only much ſmaller, and the indentures at the edges are deeper and more acute. The lobes of which they are compoſed are ſpear-ſhaped; they are five in number, are united at their baſe, and ſtand on a long red footſtalk. The leaves grow oppoſite by pairs on the branches, which are ſpread abroad on every ſide. The flowers come out from the ends of the branches. The firſt appearance of the buds is in May; though they will not be in full blow till the middle of June. They are of a bright red colour, and conſequently have a pleaſing effect among the vaſt tribe of yellow-flowering ſorts which ſhew themſelves in bloom at that ſeaſon. They continue in ſucceſſion for upwards of ſix weeks; and ſometimes are ſucceeded by ripe ſeeds in our gardens.

There are two ways of propagating this tree; 1. By budding it upon the young plants of the Horſe-Cheſnut. Theſe ſtocks ſhould be raiſed as was directed in that article. They ſhould be planted in the nurſery way, a foot aſunder, and two feet diſtant in the rows, which ſhould be kept clean of weeds, and muſt be dug between every winter till the operation is to be performed. After they have ſtood in the nurſery-ground about two years, and have made at leaſt one good ſummer's ſhoot, the ſummer following is the time for the operation. Then, having your cuttings ready ſoon after midſummer, the evenings and cloudy weather ſhould be made choice of for the work. Whoever has a great number of trees to inoculate, muſt regard no weather; but keep working on, to get his buſineſs over before the ſeaſon ends; and indeed, a good hand will be always pretty ſure of ſucceſs, be the weather what it will. If the ſtocks were healthy, the ſummer following

following they will make pretty good ſhoots; and in a year or two after that will flower. This is one method of propagating this tree; and thoſe plants that are propagated this way will grow to a larger ſize than thoſe raiſed immediately from ſeeds. 2. This tree alſo may be propagated by ſeeds; which will ſometimes ripen with us, and may be obtained out of our own gardens. The manner of raiſing them this way is as follows: Let a warm border be prepared; and if it is not naturally ſandy, let drift ſand be mixed with the ſoil; and in this border let the ſeeds be ſown in the month of March, about half an inch deep. After this, conſtant weeding muſt be obſerved; and when the plants are come up, if they could be ſhaded in the heat of the day, it would be much better. Theſe, with now and then a gentle watering in a dry ſeaſon, will be all the precautions they will require the firſt ſummer. The winter following, if the ſituation is not extremely well ſheltered, protection muſt be given them from the hard black froſts, which will otherwiſe often deſtroy them: So that it will be the ſafeſt way to have the bed hooped, to cover them with mats in ſuch weather, if the ſituation is not well defended: if it is, this trouble may be ſaved; for, even when young, they are tolerably hardy. In about two or three years they may be removed into the nurſery, or planted where they are to remain, and they will flower in three or four years after. The uſual nurſery care muſt be taken of them when planted in that way; and the beſt time for planting them there, or where they are to remain, is October; though they will grow exceeding well if removed in any of the winter months; but, if planted late in the ſpring, they will require more watering, as the ground will not be ſo regularly ſettled to the roots, as if they had been planted earlier.

AMORPHA.

Linnean Claſs and Order, *Diadelphia Decandria:* Each flower contains ten males and one female; the males being connected at the baſe in two diviſions: There is only one known Species:

Amorpha

AMORPHA *Fruticoſa:* BASTARD INDIGO; *a deciduous ſhrub*; native of Carolina.

THE AMORPHA has its beauties; but it has other ill effects to detract from its value. The leaves are late in the ſpring before their foliage is fully diſplayed. The ends of their branches are generally deſtroyed by the froſt; or, if they recover it, they have the appearance of being dead; whilſt other plants teſtify their effects of the reviving months. But notwithſtanding theſe defects, this tree has ſome other good properties that in part make amends for them. The leaves, when out, which will not be before the middle of May, are admired by all: They are of a pleaſant green colour; are very large, beautifully pinnated, the folioles being arranged along the ſtalk by pairs, and terminate by an odd one. The flowers are of a purple colour, and ſhew themſelves in perfection with us the beginning of July. They grow in ſpikes, ſeven or eight inches long, at the ends of the branches, and are of a ſingular ſtructure. In order to make this tree have its beſt effect, it ſhould be planted among others of its own growth, in a well-ſheltered ſituation; by which means the ends will not be ſo liable to be deſtroyed by the winter's froſts; the branches will not ſuffer by the violence of the winds; and as it is ſubject to put out many branches near the root, theſe indelicacies and imperfections will be concealed; whilſt the tree will ſhew itſelf to the utmoſt advantage when in blow, by elevating its purple ſpiked flowers amongſt the others in a pleaſing view.

This tree may be PROPAGATED two ways; firſt, by ſeeds, which muſt be procured from America, where the plant is a native; for they do not ripen with us in England. We generally receive the ſeeds from thence in February: and they ſhould be committed to the ground as ſoon after as poſſible. They will grow in almoſt any ſoil that is tolerably good; though the more ſandy it be, it will be the better. After they are come up, they ſhould have the uſual care of ſeedlings for a year or two, and then be planted, either where they are intended to remain, or elſe in the nurſery, where they will in a year or two make ſtrong plants. This tree may be alſo propagated by layers; and this operation I would have performed the latter end of ſummer, whilſt the ſap is in motion; for if it is deferred until winter, the

branches

branches are then ſo exceedingly brittle, that it will be with difficulty they are brought down, without breaking, a proper depth into the earth: Let the utmoſt care be taken, or many of the young branches that would have made layers will be loſt. In ſummer, then, let the branches be brought down while they are pliable; and by the autumn twelve-months after they will have taken root, and be fit to remove.

AMYGDALUS.

LINNEAN Claſs and Order, *Icoſandria Monogynia:* Each flower contains about twenty males and one female: There are four SPECIES; three of which are more particularly to our purpoſe.

1. AMYGDALUS *Communis:* The COMMON ALMOND; *a tall deciduous ſhrub*; native of Africa.

2. AMYGDALUS *Nana:* The DWARF ALMOND; *a deciduous ſhrub*; native of Aſia Minor.

3. AMYGDALUS *Perſica:* The PEACH; *a deciduous tree*; of what country is uncertain.

1. THE COMMON ALMOND will grow to near twenty feet high; and whether planted ſingly in an open place, or mixed with others in clumps, ſhrubbery-quarters, &c. ſhews itſelf one of the fineſt flowering trees in nature. Thoſe who never yet ſaw it, may eaſily conceive what a noble appearance this tree muſt make, when covered all over with a bloom of a delicate red, which will be in March; a time when very few trees are ornamented either with leaves or flowers. No ornamental plantation, therefore, of what ſort or kind ſoever, ſhould be without almond-trees. Neither are the beauties of the flowers the only thing deſirable in this tree: The fruit would render it worthy of planting, were there no other motive. It ripens well, and its goodneſs is not unknown to us.

The White-flowering Almond, well known in our nurſeries, is a *variety* of this ſpecies, and is cultivated for the ſake of the flowers

flowers and the fruit, though the flowers are inferior to the others. Neither is this tree ſo proper to plant ſingly in open places, or near windows, for the ſhow of its flowers; for although they come out early, yet the whole bloom is ſubject to be taken off in one night's nipping weather, which frequently happens at this ſeaſon. Its ſtation, therefore, ſhould be in ſhrubbery-quarters, in well-ſheltered places; and in ſuch it will flower exceeding well, and ſhew its white bloſſoms to great advantage. When it is deſigned for fruit, it ſhould be ſet againſt a ſouth wall, in a well-ſheltered place, otherwiſe there will be little hopes of ſucceſs.

2. The DWARF ALMOND. Of this tree there are two ſorts, the ſingle and the double. Both grow to about four or five feet high, and are in the firſt eſteem as flowering-ſhrubs. The ſingle ſort has its beauties; but the double kind is matchleſs. In both, the flowers are arranged the whole length of the laſt year's ſhoots; their colour is a delicate red; and they ſhew themſelves early in the ſpring, which ſtill enhances their value.

3. The PEACH-TREE has hitherto been planted againſt walls for the ſake of the fruit; but, ſays HANBURY, as I hardly ever knew a perſon who was not ſtruck with the beauty of the flowers when in full blow againſt a wall, why ſhould it not have a ſhare in wilderneſs-quarters and ſhrubberies, amongſt the ſorts of almonds, &c.? It may be kept down, or permitted to grow to the height of the owner's fancy; and the flowers are inferior to none of the other ſorts. Add to this, they frequently, in well-ſheltered places, produce fruit which will be exceedingly well-flavoured; and thus the owner may enjoy the benefit of a double treat. The above obſervations reſpect the ſingle peach; with regard to the double-flowered, it is generally propagated for ornamental plantations, and is univerſally acknowledged to be one of the fineſt flowering-trees yet known. Againſt a wall, however, theſe trees are always the faireſt; and if they have this advantage, they are ſucceeded by very good fruit.

All theſe ſorts are PROPAGATED by inoculating them into plum-ſtocks, in Auguſt. The ſtocks ſhould be firſt planted in the nurſery, when of the ſize of a ſtraw, and the firſt or ſecond ſummer after they will be ready to receive the bud. The uſual

method

method of inoculation muſt be obſerved, and there is no danger of ſucceſs; though it may be proper to obſerve, that the double-bloſſomed peach ſhould always be worked into the ſtocks of the muſſel-plum. The two ſorts of Dwarf Almond may alſo be propagated by layers, or from the ſuckers, which they ſometimes ſend forth in great plenty.

ANAGYRIS.

LINNEAN Claſs and Order, *Decandria Monogynia:* Each flower contains ten males and one female. There is only one SPECIES:

ANAGYRIS *Fœtida:* The FETID ANAGYRIS, or Stinking Bean Trefoil; *a deciduous ſhrub*; native of Italy, Sicily, and Spain.

THE ANAGYRIS is a ſhrub of about ten feet growth. The leaves are different in the different varieties: In one ſort they are oval, and moderately broad; in the other they are oblong and narrow; but all of them are hoary. The flowers are produced from the ſides of the branches, in May, like thoſe of the *Laburnum:* They are numerous, of a bright yellow colour, but ſeldom ſucceeded by good ſeeds in theſe parts.

The beſt method of PROPAGATING theſe plants is, 1ſt, by the ſeeds, which ſhould be procured from the countries where they ripen well. Sow them in a border of good rich earth, in a well-ſheltered place, and ſift over them about half an inch of fine mould. March is a very good month for this buſineſs; and when the plants appear, if the weather proves dry, frequently give them water; keep them clean of weeds all ſummer, and at the approach of winter prick round the beds ſome furze-buſhes very cloſe: Theſe will break the keen edges of the black winds; for common froſts theſe plants bear moderately well. In the ſpring let them be ſet out in the nurſery-ground, at a foot diſtance from each other. Here let them ſtand a year or two, and they will be of a proper ſize to be finally planted out. 2. Theſe plants may alſo be propagated by layers. For this purpoſe, a few

few plants ſhould be ſet for ſtools. Let them grow one ſummer, to get good hold of the ground, and then head them down. The ſummer following they will make ſtrong ſhoots, which in the autumn ſhould be layered. They will readily ſtrike root, and by the autumn following will be good plants. The weakeſt of theſe may be ſet out in the nurſery-ground for a ſeaſon or two; but the ſtrongeſt may be immediately planted out.

A N D R O M E D A.

LINNEAN Claſs and Order, *Decandria Monogynia:* Each flower contains ten males and one female. There are fifteen SPECIES; three only of which are yet enured to this climate:

1. ANDROMEDA *Paniculata:* The VIRGINIAN ANDROMEDA; *a deciduous ſhrub*; native of Virginia.

2. ANDROMEDA *Calyculata:* The CANADIAN ANDROMEDA; *a low deciduous ſhrub*; native of Canada, Siberia and Ingria.

3. ANDROMEDA *Mariana:* The MARYLAND ANDROMEDA; *a very low deciduous ſhrub*; native of Maryland and other parts of North America.

1. The VIRGINIAN ANDROMEDA is a branching ſhrub, about four feet high. The leaves are oblong, pointed, plane, and are placed alternately on the branches. The flowers come out in panicles from the ends of the branches: They are of a pale yellow colour, and come out in July, but are rarely ſucceeded by good ſeeds in England.

2. CANADA ANDROMEDA is a low branching ſhrub, hardly a foot and a half high. The leaves are oval, ſpear-ſhaped, obtuſe, reclined on their borders, and poſſeſſed of numerous ſmall punctures. The flowers grow in ſhort leafy ſpikes, from the ends of the branches: Their colour is white, they appear in July, and are ſeldom ſucceeded by good ſeeds in this country.

There is a *variety* of this ſpecies, with oval obtuſe leaves, of a thick ſubſtance, and which, in mild ſeaſons, continue on the plants all winter.

3. Maryland Andromeda. This is a ſhrub, about two feet high, ſending forth ſeveral ligneous ſtalks from the root. The leaves are oval, entire, of a pale green colour, and grow alternately on ſhort footſtalks. The flowers come out in ſmall bunches from the points of the ſtalk: They are of a greeniſh colour, come out in June and July, and are ſometimes ſucceeded by five-cornered capſules, full of ſeeds; which, nevertheleſs, ſeldom ripen in England.

Propagation: Theſe plants ſucceed beſt upon boggy and moiſt grounds. You muſt procure the ſeeds from the places where they grow naturally; a year before which a boggy or the moiſteſt part of your garden ſhould be dug, and the roots of all weeds cleared off. As the weeds begin to riſe, ſo conſtantly ſhould the ground be again dug, and ſea or drift ſand ſhould be plentifully mixed with the natural ſoil. By this management till the ſeeds arrive, the ground being made tolerably fine, the ſeeds ſhould be ſown very ſhallow in the moiſt or boggy land; or if the land ſhould be ſo boggy that it cannot be eaſily worked, ſo as to be proper for the reception of the ſeeds, then let a ſufficient quantity of ſoil from a freſh paſture, mixed with drift ſand, be laid over the bog, and let the ſeeds be ſown therein. The bog will in time abſorb this ſoil, but the ſeeds will come up; and this is the moſt effectual method of procuring plants of this kind from ſeeds. The firſt year after they come up they ſhould be ſhaded in very hot weather; and after that they will require little or no care. Another method of encreaſing theſe ſhrubs is by layers, or ſuckers; ſo that whoever has not the conveniency of procuring the ſeeds from abroad, ſhould get a plant or two of the ſorts he moſt likes: Theſe he ſhould plant in a boggy ſituation; and in a very little time he will have encreaſe enough; for they throw out ſuckers in prodigious plenty, and, if they like the ſituation, to a great diſtance. Theſe may be taken off, and planted where they are to remain.

ANNONA.

Linnean Claſs and Order, *Polyandria Polygynia*: Each flower contains many males and many females: There are nine ſpecies; one

one only of which is ſufficiently hardy for the open air of this climate.

ANNONA *Triloba*: The PAPAW or CUSTARD-APPLE; *a tall ſhrub*; native of the Weſt-Indies.

The PAPAW grows to about ſixteen or eighteen feet high. The leaves are large, and ſhaped like a ſpear, and they fall off pretty early in the autumn. The flowers, which will ſhew themſelves in the beginning of May, are of a kind of chocolate colour tinged with purple, and grow two or three on a footſtalk. The fruit is large, and never ripens in England; but in the countries where it grows naturally, it is eaten by the meaneſt of the inhabitants. The difference of its ſhape from that of a pear is, that its wideſt part is neareſt the footſtalk; and it contains a number of large ſeeds lying in a row. It is a native of Maryland, Carolina, Virginia, and the Bahama-Iſlands; and from thence we have the ſeeds brought, by which numbers of plants are annually raiſed.

The manner of RAISING them is thus: Let a bed be prepared in a moiſtiſh part, that is exceedingly well ſheltered, and naturally ſandy, or inclined thereto. If the ſoil is oppoſite to this, let a fourth part of drift ſand be mixed with the mould; and having obtained the ſeeds from abroad, ſow them in this bed about half an inch deep, letting the ſeeds be at ſome diſtance from each other. It is probable they will come up in the ſpring, though they ſometimes remain till the ſecond, nay the third ſpring before they make their appearance. When this happens, the beds muſt be weeded all the time, and the mould at the ſurface gently looſened, if it ſhould be inclined to cruſt over. After the plants are come up in the ſpring, no other than the uſual care of ſeedlings need be taken, until the autumn, when the beds muſt be hooped over, to be covered with mats at the approach of any froſt; and the gardener muſt conſtantly obſerve the weather, whether the air hath the leaſt tendency to it, that he may cover the bed over; for one night's hard froſt, while they are ſo very young, would deſtroy them all. With this careful eye he muſt conſtantly watch over theſe plants all winter. He muſt double his covering as the froſt encreaſes, and muſt always uncover them again in mild and open weather. The ſecond winter, the ſame care muſt be obſerved, though ſo ſtrict an eye will not be neceſſary; for although they will be ſubject to

be deſtroyed by hard froſts, yet if a gentle froſt ſhould catch them unawares to the gardener in the night, there will not be much danger of their ſuffering; for they will be got tolerably ſtrong by the ſecond ſummer's ſhoot: They will, nevertheleſs, be too tender to ſtand the brunt of a winter's froſt for a year or two after that; and conſequently muſt have a proportional ſhare of this attention every year during theſe months. By this time the plants will have grown to be tolerably ſtrong, and may be taken up and planted where they are to remain; though their ſituation ſhould be well defended; for a ſevere froſt in an expoſed place would ſtill overpower them; though, after they have grown to be of larger ſize, they are hardy enough.

If a perſon has the conveniency of a green-houſe, or ſome ſuch room, he may ſow his ſeeds in boxes or pots filled with maiden earth, from a rich paſture, mixed with drift ſand. Theſe boxes or pots ſhould be afterwards plunged into the natural mould, in a ſhady part of the garden; and the autumn after the plants are come up, they may be removed into the green-houſe, where they will be naturally protected from the injuries of weather. This protection may be afforded them every winter, till they are ſtrong enough to defend themſelves, when they may be turned out of the boxes or pots, mould and all, into the places where they are deſigned to remain.

A R A L I A.

LINNEAN Claſs and Order, *Pentandria Pentagynia*: Each flower contains five males and five females: There are five SPECIES; only one of which is adapted to our purpoſe:

ARALIA *Spinoſa*: The ANGELICA TREE, or PRICKLY ANGELICA: *a deciduous ſhrub*; native of Virginia.

The PRICKLY ANGELICA: The height to which this tree will grow, if the ſoil and ſituation wholly agree with it, is about twelve feet; and the ſtem, which is of a dark brown colour, is defended by ſharp ſpines, which fall off; nay, the very leaves, which are branching, and compoſed of many wings, and are of a pleaſant green colour, have theſe defenders, which are both crooked

ed and ſtrong, and ſtand as guards to them till the leaves fall off in the autumn. The flowers are produced in large umbels from the ends of the branches: They are of a greeniſh yellow colour; and their general characters indicate their ſtructure. They make their appearance the end of July or beginning of Auguſt; but are not ſucceeded by ripe ſeeds in our gardens.

PROPAGATION: This tree will what gardeners call *ſpawn*; *i. e.* after digging among the roots young plants will ariſe, the broken roots ſending forth freſh ſtems; nay, if the roots are planted in a warm border, and ſhaded in hot weather, they will grow; but if they are planted in pots, and aſſiſted by a moderate warmth of dung, or tanners bark, they will be pretty ſure of ſucceſs; ſo that the propagation of this tree is very eaſy. But the general method of propagating it, and by which the beſt plants may be had, is from ſeeds, which muſt be procured from America, for they do not ripen in England; and, after having obtained them, they muſt be managed in the following manner: The time that we generally receive them is in the ſpring; ſo that againſt their coming we muſt be furniſhed with a ſufficient number of large pots. Theſe, when the ſeeds are come, muſt be filled with fine mould, which, if taken from a rich border, will do very well. The ſeeds muſt be ſown in theſe pots as ſoon as poſſible after their arrival, hardly half an inch deep, and then the pots ſhould be plunged in a warm place their whole depth in the ſoil. Care muſt be taken to break the mould in the pots, and water them as often as it has a tendency to cruſt over; and if they are ſhaded in hot weather, the plants will frequently come up the firſt ſummer. But as this does not often happen, if the young plants do not appear by Midſummer, the pots ſhould be taken and plunged in a ſhady place; nay, if they ſhould, there will be ſtill more occaſion for this being done; for they will flouriſh after that better in the ſhade; and the deſign of plunging them in a warm place at firſt was only with a view of ſetting the powers of vegetation at work, that, having natural heat, artificial ſhade alſo may be given them, and water likewiſe, the three grand neceſſaries for the purpoſe. The pots, whether the plants are come up in them or not, ſhould be removed into ſhelter in October, either into a greenhouſe, ſome room, or under an hotbed-frame; and in the ſpring, when all danger of froſt is over, they ſhould be plunged

into the natural ground their own depth in a ſhady place. Thoſe that were already come up will have ſhot ſtrong by the autumn following; and if none of them have appeared, they will come up this ſpring; and whether they are young ſeedlings, or ſmall plants of a former ſummer's growth, they muſt be conſtantly kept clean of weeds, and duly watered in the time of drought; and this care muſt be obſerved until the autumn. In October they muſt be again removed into ſhelter, either into a greenhouſe, &c. as before, or fixed in a warm place, and hooped, that they may be covered with mats in froſty weather. In the latter end of March following, they ſhould be planted in the nurſery way, to gain ſtrength before they are finally planted out. The ground for this purpoſe, beſides the natural ſhelter, ſhould have a reed-hedge, or ſomething of the like nature, the more effectually to prevent the piercing winds from deſtroying the young plants. In this ſnug place the plants may be ſet in rows: in each of which rows furze-buſhes ſhould be ſtuck the whole length; and all theſe together will enſure their ſafety. But here one caution is to be obſerved; not to ſtick the furze ſo thick, but that the plants may enjoy the free air in mild weather, and not to take them away too early in the ſpring, leſt, being kept warm the whole winter, and being deprived of their protection, a cutting froſt ſhould happen, as it ſometimes does even in April, and deſtroy them. Weeding and watering in dry weather muſt be their ſummer's care. They may be ſtuck again with furze-buſhes in the winter; though it will not be neceſſary to do it in ſo cloſe a manner; and with this care, ſtill diminiſhing in proportion the number of furze-buſhes, they may continue for three or four years, when they may be planted out into the warmeſt parts of the plantation. With this management theſe plants will be inured to bear our winters, in well-ſheltered places.

The ſpines which grow on the branches and the leaves admoniſh us, for our own ſafety, not to plant this tree too near the ſides of frequented walks; and the conſideration of the nature of the tree, which is rather tender at the beſt, directs us (if we have a mind to retain the ſort) to plant it in a warm and well-ſheltered ſituation; where the piercing froſts, come from what point they will, will loſe their edge; for without this, they will be too tender to ſtand the teſt of a ſevere winter; though it has often happened, that after the main ſtem of the plant has been deſtroyed,

deſtroyed, it has ſhot out again from the root, and the plant by that means been both encreaſed and preſerved.

A R B U T U S.

LINNEAN Claſs and Order, *Decandria Monogynia:* Each flower contains ten males and one female. There are ten SPECIES; two of which are proper for our purpoſe.

1. ARBUTUS *Unedo:* The ARBUTUS, or the COMMON STRAWBERRY TREE; *an evergreen tree*; native of Ireland and many parts of Europe.

2. ARBUTUS *Andrachne:* The ANDRACHNE; or the ORIENTAL ARBUTUS; or the ORIENTAL STRAWBERRY-TREE; *an evergreen tree*; native of the Eaſt.

1. The ARBUTUS. Of this Species there are four *Varieties:* namely,

THE OBLONG-FRUITED,
THE ROUND-FRUITED,
THE RED-FLOWERED, AND
THE DOUBLE-BLOSSOMED.

One deſcription is nearly common to them all: And their inconſiderable variation is almoſt ſufficiently ſhewn in their reſpective appellations.

The oblong-fruited Arbutus will grow to be a middling-ſized tree in ſome countries; for we read of the large uſes its wood has been applied to; ſuch as, *Arbuteæ crates*, &c. Arbutean harrows, &c. With us it may be kept down to any ſize. The main ſtems are covered with a light-brown bark, rough, and falling. The younger branches are of a kind of purple colour, whilſt the laſt year's ſhoots are of a fine red, and a little hairy. The leaves grow alternately on the branches, and are of an oblong oval figure. They ſtand on ſhort footſtalks, and the oldeſt leaves make a contraſt with the younger by having their footſtalk and mid-rib of a fine ſcarlet colour. They are ſmooth, and beautifully ſerrated. Their upper ſurface (as in moſt trees) is of a ſtronger green than their under; and the young twigs are garniſhed with them in plenty. Theſe are beauties in common to moſt trees, in ſome degree or other; but every thing elſe almoſt of this tree that preſents itſelf to conſideration is ſingular: The time of its flowering will be in November and December; when it is rather ſingular to ſee a tree in the open ground in full blow; and the

fruit ripens by that time twelvemonth after. The manner and nature of the fruit, which look like very large red ſtrawberries, give it alſo a ſingular and delightful look; and this is heightened as they appear all over the tree among the flowers; for that is the time of its being ripe, when the flowers for the ſucceeding crop are fully out. The flowers themſelves make no great figure; they are of a kind of whitiſh-yellow colour; and are ſucceeded by the abovementioned Strawberry fruit, which will require a revolution of twelve months, before they perfectly arrive at their maturity and colour. The flowers of the firſt ſort are larger than thoſe of the ſecond; and the fruit is oval, and much larger than our Common Scarlet Strawberry.

The round-fruited ſort has its pitcher-ſhaped flowers, which are ſucceeded by round ſcarlet fruit, as wide as they are long; and this is all the difference between theſe ſorts.

The Strawberry-tree with red flowers differs in no reſpect from the common ſort, only the flowers are red, and theſe conſtitute a variety from the other ſorts of flowers; but the contraſt is not ſo great between their fruit and them, as of the other ſorts, their colour approaching too near to a ſameneſs.

The Double-bloſſomed Strawberry-tree differs in no reſpect, only that the flowers are double; but this difference is ſo inconſiderable, that it will not be ſeen without looking into the flower; and even then the doubleneſs will appear ſo trifling as ſcarcely to merit notice; ſo that a plant or two, to have it ſaid that the collection is not without it, will be ſufficient. Neither ought any more to be admitted; for they will not produce the ſame plenty of fruit, which conſtitutes the greateſt beauty of theſe trees, as the ſingle ſorts.

The method of PROPAGATING the *Varieties* of the Arbutus is by layers and cuttings: the *Species* itſelf may be raiſed from ſeed. By layers they will all grow: The operation muſt be performed on the youngeſt twigs; and in ſome ſoils they will ſtrike root pretty freely, whilſt in others they can hardly be made to grow at all: But before they have lain two ſummers, you may ſcarcely venture to look for any. When the roots are ſtruck, the layers ſhould be carefully taken off in the ſpring, and planted in ſeparate pots; and after well watering them, they ſhould be plunged up to the rims in an hotbed, and this will ſet them forward; for without this aſſiſtance, many of the layers will

will be loſt; ſince they are difficult plants to make grow. After the hotbed has forced the ſeeds into a ſtate of vegetation, the pots may be taken out, and plunged up to the rims in ſome natural mould, to keep them cool and moiſt; and here they may ſtand for two or three years, or longer, if the pots are large enough, without ever removing or ſheltering in winter; for they are hardy enough to reſiſt our ſevereſt cold. When they are to be finally ſet out, all the mould may be turned out of the pots hanging to the roots; and having proper holes made ready, they may be planted in them, and the plant will be ignorant of its new ſituation.

Theſe plants may be encreaſed by cuttings, which muſt be planted in pots, and have the benefit of a good bark-bed; in which being conſtantly ſhaded and duly watered, many of them will grow. As the plants raiſed this way will be rather tender by being forced in the bark-bed, it will be neceſſary to remove them into the greenhouſe, or to place them under an hotbed-frame during the firſt winter; and after that, the pots may be ſet up to the rims in the ground, and, like the layers, the plants may be turned out at a convenient time into the places where they are to remain.

Next we proceed to the beſt way of raiſing the *Common Arbutus*; and that is from ſeeds. Let theſe be taken from the oblong or round-fruited ſort. The ſeeds, which will be ripe ſome time in November or the beginning of December, for they will not be ripe at the ſame time in all places, muſt be then gathered; and as they ſhould not be ſowed until the ſpring, it will be proper to put them into a pot or jar, mixing with them a quantity of drift-ſand; and this will preſerve them ſound and good. The beginning of March is the beſt time for ſowing the ſeeds; and the beſt ſoil for them is maiden earth, taken from a rich paſture at leaſt a year before, with the ſward; and this, by conſtant turning, being well rotted and mixed, will be ready to receive them. Having filled a different quantity of pots with this fine mould, let the ſeeds be ſown, and but juſt covered, ſcarcely a quarter of an inch deep. A dry day ſhould be choſen for the buſineſs; and no watering by the hand ſhould be given them, as it will endanger the ſetting the mould hard in the pots. Leave them abroad until ſome rain falls, which at that time may be hourly expected; and after that, having an hotbed ready,

plunge

plunge the pots therein. In leſs than ſix weeks you may expect your plants to appear; when much air ſhould be afforded them, and frequent waterings, in ſmall quantities, gently ſprinkled over them. After this, they may be hardened to the air by degrees, and the pots ſet up to the rims in the natural mould, in a ſhady place. In October they ſhould be removed into the greenhouſe, or ſome ſhelter, in froſty weather; though they ſhould always be ſet abroad in mild open weather. In the ſpring they may be ſhook out, and planted in ſeparate pots; and they ſhould have the advantage alſo of a hotbed to ſet them a-growing: their future management may be the ſame as was directed for the layers. When theſe trees are to be planted out, very little regard need be paid to the ſoil or ſituation; for they will grow almoſt any where, and reſiſt our ſevereſt northern blaſts. One thing, however, the gardener muſt conſtantly obſerve, in order to continue his trees in their beauty; viz. as often as a heavy ſnow falls, ſo conſtantly ſhould he go and ſhake the boughs; for it will lodge amongſt the leaves and branches, in ſuch great quantity, as to weigh down and ſplit the largeſt branches; the deformity of which afterwards may be eaſily conceived. Beſides, many years muſt expire before the tree will, if ever it ſhould, grow to its former beauty; to preſerve this, therefore, makes the narrowly watching theſe trees in ſnowy weather highly neceſſary.

2. The ANDRACHNE will grow to a larger ſize than the Arbutus. The leaves are ſmooth, and nearly of the ſame figure as the preceding ſort; though they are larger, and have their edges undivided. The flowers grow like the other ſorts; are of the ſame colour; and they are ſucceeded by large, oval, ſcarlet fruit. It is called the Oriental Strawberry-Tree, becauſe this ſort grows plentifully in many parts of the Eaſt, and is uſeful to the inhabitants for many purpoſes in life.

The *Andrachne* may be PROPAGATED in the ſame manner as the *Arbutus*.

ARTEMISIA.

LINNEAN Claſs and Order, *Syngeneſia Polygamia Superflua*: Hermaphrodite florets containing five males and one female, and female

female florets containing one piſtil, in the ſame diſcous flower: There are twenty-five SPECIES, which are principally herbaceous; one only being intitled to a place amongſt the tribe of ornamentals.

ARTEMISIA *Arboreſcens:* The TREE-WORMWOOD: *a non-deciduous ſhrub:* native of Italy and the Eaſt.

The TREE-WORMWOOD riſes with an upright ſtalk to the height of about ſix feet. The leaves are its chief excellence; and of theſe there are two or three ſorts: One ſort is very much divided, or cut into ſeveral narrow ſegments; thoſe of the other are broader. They are very hoary; and as they continue on the branches all winter, they have a ſingular and an agreeable effect among the evergreens at that ſeaſon. The flowers are ſmall, and have very little beauty; they are collected into roundiſh heads, and I never perceived them to be followed by good ſeeds.

This plant is eaſily PROPAGATED by cuttings. Plant them in May, June, July or Auguſt, in a ſhady place, and they will readily grow, eſpecially if they are watered a few times at the firſt planting. In the autumn theſe cuttings, which will then have become good plants, ſhould be each ſet in a ſeparate ſmall pot, and placed under a hotbed frame, or in the greenhouſe, to be preſerved all winter. In the ſpring they may be turned out into the places where they are deſigned to remain, which muſt be naturally warm and well ſheltered, or they will be liable to be deſtroyed by the ſeverity of the following winter. In ſuch a ſituation they will live for many years; though it may be adviſeable to keep a plant or two in the greenhouſe, to keep up the ſtock, if a more than common hard winter ſhould put a period to thoſe that are planted abroad.

A T R I P L E X.

LINNEAN Claſs and Order, *Polygamia Monoecia:* Hermaphrodite flowers containing five males and one female, and female

male flowers containing one piſtil, on the ſame plant. There are twelve SPECIES; two only of which are to our purpoſe.

1. ATRIPLEX *Halimus:* BROAD-LEAVED SEA PURSLAIN-TREE: *a non-deciduous ſhrub*; grows naturally upon the ſea-coaſt of Spain and Portugal; as alſo in Virginia.

2. ATRIPLEX *Portulacoides:* NARROW-LEAVED SEA-PURSLAIN-TREE; *a non-deciduous ſhrub*; native of our own ſea-coaſt, and of the North of Europe.

1. The BROAD-LEAVED PURSLAIN-TREE generally grows to about five or ſix feet; and will ſend forth its branches ſo as to ſpread around, and form a large broad head. The young branches are covered with a ſmooth white bark; that of the older is of a light grey colour, which will be peeling lengthways, and falling, eſpecially in the ſpring. The branches are exceedingly brittle, and their inſide is green to the very pith, of which there is very little. The leaves are ſoft, white, and ſilvery, and nearly of the ſhape of the Greek letter *Delta*. They have their edges entire; and look well at all times, eſpecially in winter, when they cauſe as great a variety as poſſible among thoſe trees that retain their leaves at that time. This ſhrub ſeldom flowers in our gardens; and when that happens, it is poſſeſſed of no beauty to recommend it to the floriſt.

2. The NARROW-LEAVED PURSLAIN-TREE commonly grows to about four feet high. The branches are numerous and grey; and they naturally ſpread abroad in a buſhy manner. The leaves are ſilvery; though not ſo white as the other ſort; but they are narrower, which occaſions its being ſo diſtinguiſhed; and of an oval figure; and by them the ſhrub receives no ſmall ornament. The flowers have little beauty.

Theſe ſhrubs are PROPAGATED by cuttings; which will grow, if planted at any time of the year; though the beſt way is to take the cuttings in March, of the ſtrongeſt former ſummer's ſhoots, to cut them into lengths about a foot each, and to plant them a third part deep in the mould. Theſe will all readily take root, and be good plants by the autumn following. In ſummer, ſlips and cuttings may be planted; but then it will be adviſeable to plant them pretty cloſe together in beds, and afterwards to hoop the beds, and ſhade them from the heat at

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that time. They will ſoon take root; and after that will require no further trouble: But until that is effected, they ſhould be watered and ſhaded in the hot weather, and the mats ſhould be conſtantly taken off in the evening, and alſo in rainy, moiſt, or cloudy weather; and by this means plenty of plants may be raiſed. If it happened to be a dripping day when they were firſt planted, much trouble in ſhading and watering will be ſaved, as they may be nearly upon ſtriking root before the weather clears up. Theſe ſhrubs ſhould be always raiſed at a diſtance from farm-yards, barns, &c. where there are ſparrows; for theſe birds are ſo exceedingly fond of the leaves, that when once they find them out, they will never leave nor forſake them until they have entirely ſtripped the plants; and though the ſhrub will ſhoot out afreſh, yet they will as conſtantly repair to their repaſt, and will thus continue to prey upon them until they have entirely deſtroyed them. I am obliged (continues HANBURY) to give this precaution, becauſe all my plants of theſe ſorts are thus conſtantly eat up by the ſparrows in my gardens at Church-Langton, as often as I plant them; ſo that I am obliged to keep them at Gumley, and in my other diſtant nurſeries, where they remain free from ſuch devourers.

Theſe plants require a warm ſheltered ſituation, being ſubject to be cut by the early froſts.

A Z A L E A.

LINNEAN Claſs and Order, *Pentandria Monogynia:* Each flower contains five males and one female. There are ſix SPECIES; two of which are proper for the ſhrubbery.

AZALEA *Nudiflora:* The RED AMERICAN UPRIGHT HONEYSUCKLE: or the RED AZALEA; *a deciduous ſhrub*; native of Virginia.

AZALEA *Viſcoſa:* The WHITE AMERICAN UPRIGHT HONEYSUCKLE; or The WHITE AZALEA; *a low deciduous ſhrub*; native of Virginia.

1. The RED AZALEA has ſeveral ſtems ariſing from the ſame root, which will grow to ſeven or eight feet high. The leaves

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are of an oval figure, ſmooth, entire, and placed alternately on the branches. The flowers are produced in cluſters from the ſides of he branches, on long naked footſtalks: Their colour is red, and they are agreeably ſcented; each compoſed of a long naked tube, cut at the top into five ſpreading ſegments. They will be in blow in July; but they ſeldom ripen their ſeeds in our gardens. There is a variety of this, with yellow flowers.

2. The WHITE AZALEA. From the root of this ariſe ſeveral ſlender brown ſtems, to three or four feet high. The leaves are ſpear-ſhaped, narrow at their baſe, have a rough border, and grow in cluſters. The flowers terminate the branches in cluſters, coming out between the leaves. They are finely ſcented, and each of them has a tube of near an inch long, divided at the top into five ſegments, two of which are reflexed. Their colour is white, with a bad yellow on their outſide; they will be in blow in July, but are never ſucceeded by ſeeds in our gardens.

Theſe ſorts are PROPAGATED, 1. By layering the young ſhoots; and for this purpoſe, a ſlit muſt be made on each, as is practiſed for carnations: The autumn is the beſt ſeaſon for the work. When the layers have ſtruck good root, they may be removed into the nurſery, and planted in lines at a ſmall diſtance from each other; where after having ſtood a year or two at the moſt, they will be proper plants to be planted out. 2. Theſe ſorts alſo propagate themſelves very faſt; for as they throw up many ſtems from the ſame roots after they have ſtood a few years, ſome of theſe may eaſily be taken off, with ſome root at each, and either planted in the nurſery-ground, or the places where they are to remain.

BERBERIS.

LINNEAN Claſs and Order, *Hexandria Monogynia:* Each flower contains ſix males and one female: There are three SPECIES; two of which are here treated of:

1. BERBERIS *Vulgaris:* The COMMON BERBERY: a well-known *deciduous ſhrub*, common in our hedges.

2. BERBERIS *Cretica*: The CRETAN, or BOX-LEAVED BERBERY: *a low deciduous ſhrub*; native of Crete.

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1. The COMMON BERBERY. This ſhrub is diſtinguiſhed by the acidity of its leaves, the ſharpneſs of its ſpines, the yellowneſs of its inner bark, and the ſcarlet colour of its berries, which add a beauty to our hedges in winter, and afford a favourite pickle and garniſh for our tables. Hanbury enumerates other uſes of the Berbery, particularly in medicine, and recommends the cultivation of it in the warmeſt manner. There is however an evil attendant of the Berbery-buſh which ought to confine it within the pale of our gardens and ſhrubberies; we mean its poiſonous effect upon corn; more particularly upon wheat. This is a circumſtance which has been long known to the common farmers in different parts of the kingdom, eſpecially in Norfolk, where the farmers are more obſervant and much more enlightened than thoſe uſeful members of ſociety in general are. The idea, nevertheleſs, has been treated by theoretical writers on Huſbandry as chimerical and ſuperſtitious; and has been brought forward as one of thoſe vulgar errors of farmers which ought to induce gentlemen and men of genius to reſcue ſo uſeful a ſcience as that of Agriculture out of the hands of ignorance. Being however always ready to hear the opinion of *profeſſional* men, and having been aſſured by many ſenſible farmers of the truth of this matter, we had a few years ago a Berbery-buſh planted, in the month of February, in the centre of a large piece of wheat. No obvious effect took place until the corn began to change its colour before harveſt, when a long blackening ſtripe became ſo conſpicuous amongſt the growing whiteneſs of the wheat, that it might have been diſtinguiſhed at a mile's diſtance. It reſembled the tail of a comet; the buſh repreſenting the comet itſelf; and what rendered the experiment ſtriking, whilſt on one ſide the effect did not reach more than three or four feet, on the oppoſite ſide it was obvious to the diſtance of ten or twelve yards; notwithſtanding the top of the ſhrub planted was not much larger than a man's head. At harveſt, the ears which grew in the immediate neighbourhood of the buſh, ſtood erect, the grains ſhriveled and empty;—— as the diſtance from the Berbery increaſed the effect leſſened, vaniſhing imperceptibly: whilſt the grain of the reſt of the field was of a good quality. We do not mean in this place to comment upon the fact, or to attempt to account for ſo ſingular an effect by the help of *reaſoning* only; having in our intentions a ſuite of *experiments*

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in order to endeavour to come at the cauſe. Our motive for mentioning the fact at preſent is to induce others to make ſimilar experiments, as well as to ſtimulate gentlemen to extirpate from their eſtates ſo pernicious a plant; more particularly from the hedges and borders of arable fields.

There are three *Varieties* of the Common Berbery:

The Berbery with white fruit.

The Berbery with black fruit.

The Berbery without ſtones: which laſt is the ſort principally cultivated for the berries.

2. The BOX-LEAVED BERBERY grows to a yard or four feet high, and is poſſeſſed of many ſharp ſpines at the joints. The leaves are like thoſe of the box-tree, between which the flowers come out, on ſlender footſtalks. But as this ſort never produces any fruit in England, and being alſo liable to be killed by hard froſts, it is ſeldom propagated in our gardens.

The PROPAGATION of the Berbery is as follows. 1. When a quantity of the common Berbery is wanted, the beſt way is to raiſe it from the ſeeds, which ſhould be ſown, ſoon after they are ripe, in a bed made in any part of the garden. Theſe will frequently remain till the ſecond ſpring before the plants come all up; till which time the beds ſhould be weeded as often as the weeds appear; for if they are neglected ſo as to get ſtrong, by pulling them up many of the ſeeds will alſo be drawn out of the bed by their roots. After the plants have grown one year in the ſeed-bed, they ſhould be planted out in the nurſery, where they may remain for about two years, when they will be fit to plant out finally. This is the moſt expeditious method of raiſing a large quantity of theſe trees, when wanted. 2. Another method of propagating the Berbery is by layers; a method by which all the ſorts may be encreaſed; and in the performance of which, no other art or trouble need be uſed, than laying the branches down in the ground, without either ſlit or twiſt. If this is done any time in the winter, by the autumn following they will have taken good root; the ſtrongeſt of which layers will be then fit to plant out; whilſt thoſe that are weaker may be planted in the nurſery-ground, to gain ſtrength. 3. The cuttings alſo of theſe trees will grow; for if they be planted in October, in a moiſtiſh good earth, they will moſt of them ſtrike root; ſo that the propagation of this tree by any of theſe ways is very eaſy.

eaſy. Whoever is deſirous of the Box-leaved Berbery muſt afford it a warm dry ſoil, in a well-ſheltered place.

BETULA.

LINNEAN Claſs and Order, *Monoecia Tetrandria:* Male flowers containing four ſtamens, and female flowers containing two piſtils, diſpoſed in ſeparate cylindrical catkins upon the ſame plant. There are five SPECIES:

1. BETULA *Alba:* The COMMON WHITE BIRCH: a well known *deciduous tree*; native of this country, as alſo of moſt of the colder parts of Europe.

2. BETULA *Nigra:* The VIRGINIAN BLACK BIRCH: *a deciduous tree*; native of Virginia, as alſo of Canada.

3. BETULA *Lenta:* The CANADA BIRCH: *a deciduous tree*; native of Canada, and of Virginia.

4. BETULA *Nana:* The DWARF BIRCH: *a deciduous ſhrub*; native of Lapland, Ruſſia, Sweden, and Scotland.

5. BETULA *Alnus:* The ALDER: a well known aquatic *deciduous tree*; common in our ſwamps and low grounds; it is alſo common in moſt parts of Europe, and in America.

1. The COMMON WHITE BIRCH. This tree is ſo common, and its uſes ſo well known throughout the kingdom, that any deſcription of it ſeems unneceſſary. It is in general of a humble growth; however, in a ſoil and ſituation it affects, it will riſe to a great height, and ſwell to a conſiderable ſize. There is a ſpruceneſs in its general appearance in ſummer; and in winter its bark ſometimes exhibits, in its variegations of red and white, no inelegant object. Were it not for its being ſo commonly ſeen upon poor ſoils, and in bleak inhoſpitable ſituations, as well as for the mean and degrading purpoſes to which it is univerſally put, the Birch would have ſome claim to being admitted to a place among the *ornamentals*. Its *uſes* are chiefly for brooms, fuel, and charcoal: if it be ſuffered to grow to a proper ſize, it will make tolerable gates, hurdles, rails, &c: it is alſo uſed by the patten-makers. HANBURY ſays, it is alſo applicable

to larger uſes; and is highly proper for the fellies of broad-wheel waggons, it being inlocked ſo as not to be cleaved. "I have been informed (ſays he) by an old experienced wheelwright, that old Birch-trees cannot be cleft, as the grains run croſſways, and that he prefers it for ſeveral uſes in his way to moſt wood; and as I have ſeen ſeveral of theſe trees more than two feet ſquare, the timber of the Birch may perhaps be of more value than it has hitherto been eſteemed." Its uſe in making wine is well known. But although we enumerate the uſes to which the Birch is applicable when it is already in poſſeſſion, we do not mean to recommend in general terms the planting of Birch; except in bleak and barren ſituations where no other tree will thrive; and except as a ſkreen and guardian to nurſe-up and defend from chilling blaſts plants of greater value.

The PROPAGATION of the Birch is eaſy: it may be raiſed either from ſeeds, or by layering; and it will flouriſh in almoſt any ſoil or ſituation.

2. The BLACK VIRGINIA BIRCH will grow to upwards of ſixty feet in height. The branches are ſpotted, and more ſparingly ſet in the trees than the common ſorts. The leaves are broader, grow on long footſtalks, and add a dignity to the appearance of the tree; and as it is naturally of upright and ſwift growth, and arrives at ſo great a magnitude, HANBURY thinks it ought to have a ſhare among our foreſt-trees, and to be planted for ſtandards in open places, as well as to be joined with other trees of its own growth in plantations more immediately deſigned for relaxation and pleaſure.

There are ſeveral *varieties* of this ſpecies, differing in the colour, ſize of the leaves, and ſhoots; all of which have names given them by nurſerymen, who propagate the different ſorts for ſale; ſuch as, 1. *The Broad-leaved Virginian Birch*; 2. *The Poplar-leaved Birch*; 3. *The Paper-Birch*; 4. *The Brown Birch*, &c.

3. CANADA BIRCH. This grows to a timber-tree of ſixty or more feet in height. The leaves are heart-ſhaped, oblong, ſmooth, of a thin conſiſtence, pointed, and very ſharply ſerrated. They differ in colour; and the *varieties* of this ſpecies go by the names of, 1. *Duſky Canada Birch*; 2. *White-Paper Birch*; 3. *Poplar-leaved Canada Birch*; 4. *Low-growing Canada Birch*,

Birch, &c. The bark of this ſpecies is very light, tough, and durable; and the inhabitants of America uſe it for canoes.

4. DWARF BIRCH. This is a low branching ſhrub, about two feet high. The leaves are round, and their edges are ſerrated. It hardly ever produces either male or female flowers, and is chiefly coveted when a general collection of plants is making.

The method of PROPAGATING all the foreign ſorts is, 1. From ſeeds. We receive the ſeeds from America, where they are natives; and if we ſow them in beds of fine mould, covering them over about a quarter of an inch deep, they will readily grow. During the time they are in the ſeminary, they muſt be conſtantly weeded, watered in dry weather, and when they are one or two years old, according to their ſtrength, they ſhould be planted in the nurſery, in rows, in the uſual manner. Weeding muſt always be obſerved in ſummer, and digging between the rows in winter; and when the plants are about a yard or four feet high, they will be of a good ſize to be planted out for the ſhrubbery-quarters. A part, therefore, may be then taken up for ſuch purpoſes; whilſt the remainder may be left to grow for ſtandards, to anſwer ſuch other purpoſes as may be wanted. 2. Theſe trees may alſo be propagated by layers; and this is the way to continue the peculiarities in the varieties of the different ſorts. A ſufficient number of plants ſhould be procured for this purpoſe, and ſet on a ſpot of double-dug ground, three yards diſtance from each other. The year following, if they have made no young ſhoots, they ſhould be headed to within half a foot of the ground, to form the ſtools, which will then ſhoot vigorouſly the ſummer following; and in the autumn the young ſhoots ſhould be plaſhed near the ſtools, and the tender twigs layered near their ends. They will then ſtrike root, and become good plants by the autumn following; whilſt freſh twigs will have ſprung up from the ſtools, to be ready for the ſame operation. The layers, therefore, ſhould be taken up, and the operation performed afreſh. If the plants deſigned for ſtools have made good ſhoots the firſt year, they need not be headed down, but plaſhed near the ground, and all the young twigs layered. Thus may an immediate crop be raiſed this way; whilſt young ſhoots will ſpring out in great plenty below the plaſhed part, in order for layering the ſucceeding year. This work, therefore, may be repeated every autumn or winter; when ſome of the ſtrongeſt

layers may be planted out, if they are immediately wanted; whilſt the others may be removed into the nurſery, to grow to be ſtronger plants, before they are removed to their deſtined habitations. 3. Cuttings alſo, if ſet in a moiſt ſhady border the beginning of October, will frequently grow: But as this is not a ſure method, and as theſe trees are ſo eaſily propagated by layers, it hardly deſerves to be put in practice.

5. The Alder. This well-known aquatic will grow to a large timber tree. The Alder, like the Birch, ſuffers, as an *ornamental*, from an aſſociation of ideas; we not only ſee it very common, but we ſee it in low, dreary, dirty ſituations: nevertheleſs, if the Alder be ſuffered to form its own head in an open advantageous ſituation, it is by no means an unſightly tree: in Stow Gardens, in what is called the old part, there are ſome very fine ones; and in coming round from the houſe by the road leading to Buckingham, there is one which is truly ornamental. Hacked and disfigured in the manner in which Alders in general are, they have but little effect in doing away the unſightlineſs of a ſwamp; but if they were ſuffered to riſe in groups and finglets, open enough to have room to form their full tops, and cloſe enough to hide ſufficiently the unſeemlineſs of the ſurface, even a moor or a moraſs ſeen from a diſtance might be rendered an agreeable object. Many *uſes* of Alders have been enumerated by authors: they were, indeed, more numerous than they are at preſent. Leaden pipes have ſuperſeded them as pump-trees and water-pipes, and logwood has rendered their bark of little value. They are however ſtill uſeful as piles, and make tolerable boards; they are alſo convenient as poles, and make good charcoal: great quantities are cut up for patten wood, and for the wooden heels and ſoals of ſhoes. But upon the whole the conſumption is too inconſiderable to make them an object of the planter's notice, except in particular ſituations. For ſecuring the banks of rivers we know of nothing better than the Alder; its roots are ſtronger and more interwoven with each other than thoſe of the Salix tribe: alſo in low ſwampy ſituations where the ground cannot be drained but at too great an expence, the Alder may be planted with propriety and advantage: but wherever the ſoil is or can be made paſturable, the Alder ſhould by no means be permitted to gain a footing. Its ſuckers and ſeedlings poiſon the herbage; and it is a fact well known to the obſervant huſbandman,

man, that the roots of the Alder have a peculiar property of rendering the ſoil they grow in more moiſt and rotten than it would be if not occupied by this aqueous plant. Plantations of Alders ſhould therefore be confined to ſwampy, low, unpaſturable places; except when they are made for the purpoſes of ornament; and in this caſe the native ſpecies ought to give place to its more ornamental *varieties*, of which HANBURY makes five; namely. 1. The Long-leaved Alder. 2. The White Alder. 3. The Black Alder. 4. The Hoary-leaved Alder. 5. The Dwarf Alder.

The PROPAGATION of the Alder, like that of the other aquatic natives, is very eaſy: it may be raiſed either from ſuckers, from cuttings, or by layering; and no doubt from ſeed, though this mode of propagation is ſeldom practiſed in this country. EVELYN mentions a peculiar method of raiſing this tree from cuttings or truncheons, which he calls the *Jerſey manner*: he ſays, "I received it from a moſt ingenious gentleman of that country: it is, to take truncheons of two or three feet long at the beginning of the winter, and to bind them in faggots, and place the ends of them in water till towards the ſpring, by which ſeaſon they will have contracted a ſwelling ſpire or knur about that part, which being ſet does (like the Gennet-moil Apple-Tree) never fail of growing and ſtriking root." MILLAR recommends truncheons of three feet long, two feet of which to be thruſt into the ground. HANBURY ſays, that truncheons are uncertain, and ſtrongly recommends layering; which for preſerving the varieties, as well as for ornamental plantations of Alders in general, is the beſt method.

BIGNONIA.

LINNEAN Claſs and Order, *Didynamia Angioſpermia*: Each flower contains four males and one female; two of the males being ſhorter than the other two; and the ſeeds being incloſed in a pod. There are eighteen SPECIES; five of which are enured to this climate.

1. BIGNONIA *Catalpa:* The CATALPA; *a deciduous tree*; native of Carolina.

2. BIGNONIA *Sempervirens:* The EVERGREEN BIGNONIA, or the VIRGINIA JASMINE, or the VIRGINIA CLIMBER; an *evergreen climber*; native of Virginia.

3. BIGNONIA *Unguis:* The CLAW BIGNONIA, or the QUADRIFOLIATE BIGNONIA; *a deciduous climber*; native of Barbadoes, and other Weſt-India Iſlands.

4. BIGNONIA *Capreolata:* The TENDRIL BIGNONIA, or the CAPREOLATE BIGNONIA; *a deciduous climber*; native of North America.

5. BIGNONIA *Radicans:* The SCARLET TRUMPET FLOWER; *a deciduous climber*; native of Carolina, Virginia, and Canada.

1. The CATALPA will grow to the height of thirty or forty feet; and as the ſtem is upright, and the leaves fine and large, it ſhould be planted as a ſtandard in the midſt of fine opens, that it may without moleſtation ſend forth its lateral branches, and ſhew itſelf to every advantage in view. Theſe opens, nevertheleſs, ſhould be ſuch as are well ſheltered, otherwiſe the ends of the branches will be deſtroyed by the ſeverity of the winter's froſt, which will cauſe an unſightly appearance; and the leaves, being very large, make ſuch a reſiſtance to the ſummer's high winds, as to occaſion whole branches to be ſplit off by that powerful element. The bark of the Catalpa is brown and ſmooth, and the leaves are cordated. They are about five or ſix inches in breadth, and as many in length. They ſtand by threes at the joints, are of a blueiſh caſt, and are late in the ſpring before they come out. The flowers are tubulous; their colour is white, having purple ſpots, and yellowiſh ſtripes on the inſide. They will be in full blow in Auguſt; but are not ſucceeded by good ſeeds in England.

Whoever has the conveniency of a bark-bed may PROPAGATE this tree in plenty, 1. By cuttings, which being planted in pots, and plunged into the beds in the ſpring, will ſoon ſtrike root, and may afterwards be ſo hardened to the open air, that they may be ſet abroad in the ſhade before the end of ſummer: in the beginning of October, they ſhould be removed into a green-houſe, or under ſome ſhelter, to be protected from the winter's froſt. In the ſpring, after the bad weather is paſt, they

they may be turned out of the pots, and planted in the nurſery-way, in a well ſheltered place; and if the ſoil be rich, and rather inclined to be moiſt, it will be the better. Here they may ſtand for four or five years, the rows being dug in winter, and weeded in ſummer, when they will be of a proper ſize to be planted out to ſtand. Theſe cuttings will often grow in a rich, ſhady, moiſt border; ſo that whoever can have plenty of them, ſhould plant them pretty thick in ſuch a place, and he may be tolerably ſure, by this way, of raiſing many plants. 2. From ſeed, which muſt be procured from America, and ſhould be ſown in a fine warm border of light rich mould, or elſe in pots or boxes; the ſeedling plants requiring more than a common care.

2. The EVERGREEN BIGNONIA has almoſt every perfection to recommend it as a climber; for though the plants are ſmall, yet if they are trained up to a wall, or have buſhes or trees on which to climb, they will mount to a great height, by their twining ſtalks, and over-top hedges, and even trees, and will form at a diſtance a grand figure from the ſway they will bear. The leaves of Bignonia are ſingle, and of a lanceolate figure. They grow from the joints, are of a fine ſtrong green colour, and very ornamental: but the flowers conſtitute the greateſt value of this plant, on account of the fine odour nature has beſtowed on them; which is to ſo great a degree as to perfume the circumambient air to a conſiderable diſtance. Theſe flowers are of a yellow colour, and leſs beautiful than ſome of the other ſorts, which is ſufficiently recompenſed by their extraordinary fragrance. They grow in an erect manner, from the wings of the leaves at each joint, and their figure nearly reſembles that of a trumpet. The pods that ſucceed theſe flowers are ſmall.

There is a *variety* of this ſpecies, which over-tops whatever plants are near it, to a great height. The leaves are of a lanceolate figure, and grow from the joints, often four oppoſite. They are of a fine green; but their flowers are produced rather thinly, and ſtand each on its own footſtalk; and are not poſſeſſed of the heightened fragrance of the other.

3. The CLAW BIGNONIA is another noble climber. It riſes by the help of claw-like tendrils, the branches being very ſlender and weak; and by theſe it will over-top buſhes, trees, &c. twenty or thirty feet high. The branches, however, ſhew their

natural tendency to aſpire, for they wind about every thing that is near them; ſo that, together with the aſſiſtance nature has given them of tendrils, it is no wonder they arrive at ſo great an height. Theſe branches, or rather ſtalks, have a ſmooth ſurface, are often of a reddiſh colour, particularly next the ſun, and are very tough. The tendrils grow from the joints; they are bowed, and are divided into three parts. The leaves grow in pairs at the joints, and are four in number at each. Theſe are of an oblong figure, have their edges entire, and are very ornamental to the plant; for they are of an elegant green colour: their under-ſurface is much paler than their upper, and their footſtalks, mid-rib, and veins, alter to a fine purple. The flowers are monopetalous and bell-ſhaped. The tube is very large, and the rim is divided and ſpreads open. They grow from the wings of the leaves, in Auguſt, two uſually at each joint; and they are ſucceeded in the countries where they grow naturally by long pods.

4. The TENDRIL BIGNONIA is another fine climber, which riſes by the aſſiſtance of tendrils or claſpers. The leaves grow at the joints oppoſite by pairs, though thoſe which appear at the bottom frequently come out ſingly. They are of an oblong figure, and continue on the plant all winter. The flowers are produced in Auguſt, from the wings of the leaves: they are of the ſame nature, and of the ſhape nearly of the former; are large, of a yellow colour, and ſucceeded by ſhort pods.

5. The SCARLET TRUMPET FLOWER will arrive to a prodigious height, if it has either buildings or trees to climb up by; for it ſtrikes root from the joints into whatever is near it, and thus will get up to the tops of buildings, trees, &c. be they ever ſo high. This ſpecies has pinnated leaves, which grow oppoſite by pairs at the joints. Theſe leaves are compoſed of about four pair of folioles, which end with an odd one. They are of a good green colour, have their edges deeply cut, and drawn out into a long point. The flowers are produced in Auguſt, at the ends of the branches, in bunches: they are large, and, like the other, are compoſed of one tube; but they are ſhaped more like a trumpet than any of the ſorts. They are of a fine red colour, and make a grand ſhow. This is the ſort chiefly known by the name of the Scarlet Trumpet Flower.

There is another ſort called, the *Smaller Trumpet Flower*. It differs from the laſt only in that the leaves and flowers are ſmaller,

ſmaller, and ſome fancy their colour to be a finer red; the colour of the former, in ſome ſituations, often approaching to that of an orange colour. Theſe two ſorts are more hardy than any of the others, and conſequently more proper to be ſet againſt old walls, &c. in expoſed ſituations: they will all, however, bear our climate very well; though it would be adviſeable to ſet the tender ſorts in well-ſheltered places, as they will otherwiſe be in danger of ſuffering by ſevere froſts, eſpecially while young, if there be nothing to break them off.

The PROPAGATION of the Climbers. 1. If the ſhoots are laid upon the ground, and covered with a little mould, they will immediately ſtrike root, and become good plants for ſetting out where they are wanted. 2. They will all grow by cuttings. The bottom part of the ſtrongeſt young ſhoots is the beſt; and by this method plenty may be ſoon raiſed. 3. They are to be raiſed by ſeeds; but this is a tedious method, eſpecially of the pinnated-leaved ſorts; for it will be many years before the plants raiſed from ſeeds will blow.

BUPLEURUM.

LINNEAN Claſs and Order, *Pentandria Digynia:* Each flower contains five males and one female. There are ſixteen SPECIES; but they are principally herbaceous: There is only one fit for open grounds in this country.

BUPLEURUM *Fruticoſum:* The ETHIOPIAN HARTWORT, or the SHRUBBY BUPLEURUM; *an evergreen ſhrub*; growing naturally amongſt the rocks on the coaſt of the South of France, and alſo in ſome parts of Italy.

The ETHIOPIAN HARTWORT is of low growth; it ſeldom riſes more than eight feet high; and will produce plenty of flowers before it gets to the height of one yard. The bark of the oldeſt ſtems is of a brown, that on the younger ſhoots of a reddiſh, colour; but this is not conſtant, for ſometimes it will be greyiſh, at others of a purpliſh blue. The leaves are of a fine pale green colour, and placed alternately on the branches. They are of an oblong, oval figure, and have their edges entire. They are ſmooth, and, being of a delicate pale green, are very ornamental to the ſhrub. The flowers are produced from the

the ends of the branches, in longiſh umbels. They make no great figure (having but a bad yellow colour), appear in July and Auguſt; and are ſucceeded by ſeeds, which will often, though not always, ripen with us; and by which, when they do, plenty of plants may be raiſed.

The method of PROPAGATING this ſhrub is either from ſeeds ſown in pots of rich light loom in March; or from cuttings, in the following manner: The latter end of July is the time; and if the weather be moiſt or rainy, ſo much the better; if not, ſome beds muſt be well dug, and made moiſt by watering. The cuttings ſhould be planted in the evening, and the beds muſt be hooped, to be covered with mats in the heat of the day. On their being firſt planted, no ſun ſhould come near them; but after they have been ſet a fortnight, they may have the morning ſun until nine o'clock, and afterwards ſhading; obſerving always to uncover them in the evening, as alſo in moiſt, cloudy, or rainy weather. Many of theſe cuttings will grow; and in winter it will be proper to protect them from the froſt with mats in the like manner: After that they will require no further trouble until they are planted out.

This evergreen is ſcarcely hardy enough to ſtruggle with our ſevereſt weather; whenever therefore it is introduced into plantations, it ſhould always have the advantage of a dry ſoil and a well-ſheltered ſituation.

BUXUS.

LINNEAN Claſs and Order, *Monoecia Tetrandria:* Male flowers containing four ſtamens, and female flowers containing three piſtils upon the ſame plant. LINNEUS makes only one SPECIES of *Buxus:* of this however there are ſeveral *varieties*; ſome of which in their preſent ſtate have every appearance of diſtinct ſpecies *:

* MILLAR ſays, "The two ſorts of Tree Box have been frequently raiſed from ſeeds, and conſtantly produced plants of the ſame kind with thoſe the ſeeds were taken from, and the Dwarf Box will never riſe to any conſiderable height with any culture." (Art. BUXUS.)

1. The

1. The BROAD-LEAVED TREE-BOX: A tall *evergreen ſhrub*; native of the ſouthern parts of Europe, and, *it is ſaid*, of this iſland.

2. The NARROW-LEAVED TREE-BOX.

3. The Gold-ſtriped Box.

4. The Silver-ſtriped Box.

5. The Gold-edged Box.

6. The Curled-leaved Striped Box.

7. The DWARF Box.

1. The BROAD-LEAVED TREE-BOX. This we will conſider as the TRUE BUXUS, and the reſt as *varieties*. The Box-Tree will grow to the height of fifteen or twenty feet. The leaves are ſmooth and ſhining, and the branches of a yelloviſh hue. There is a ſwelling ſoftneſs and a peculiar delicacy and richneſs in the general appearance of the Box, which, in winter more eſpecially, affords the eye a delicious repaſt. As an *ornamental* it ſtands firſt among the evergreens; and its *uſes* are very many. Indeed, we know of no ſhrub or tree whatever, the Oak, the Aſh, the Elm, and the Beech excepted, ſo deſerving of the planter's notice as the Box. It will flouriſh upon barren ſoils and in bleak ſituations where ſcarcely any other plant will thrive. The only extenſive *plantations* of Box in this kingdom are thoſe upon Box-Hill; and the ſoil there is a poor thin-ſkinned chalky loam, and the ſituation high, unſheltered, and bleak in the extreme; yet the plants thrive with great luxuriance. The Box however is by no means partial to poor land and an open country; it thrives in every ſoil and in the cloſeſt ſituations, being remarkably patient of the ſhade and drip of other trees: we have ſeen it in a neglected grove, growing under a perfect canopy of foliage with the ſame healthfulneſs and luxuriancy as if it had ſtood in the open air. This naturally points out a ſituation and uſe proper for the Box, which does not ſeem to have been thought of; we mean that of UNDERWOOD TO THE OAK. Thus employed, what an admirable cover to game; and how friendly to the ſportſman! what a delightful paſſage in cultivated nature; and how profitable to the planter! Box wood is now worth 16s. per cwt.

2. The NARROW-LEAVED TREE-BOX. Of this beautiful plant there are ſome *ſub-varieties*, that differ in the ſize of

of their leaves; but it is the ſmalleſt-leaved ſort that is here meant; and as this ſort is not very common, it is valued on that account. It is rather of a lower growth than the former ſort, and its branches are more ſlender and numerous. It forms itſelf naturally into a regular head, and the whole ſhrub aſſumes an air of delicacy. The leaves grow oppoſite by pairs, as in the other ſort; but are produced in great plenty. They are very ſmall and narrow; and their ſurface is not ſo ſhining as the Broad-leaved Box. As the branches and leaves are the only ornament theſe trees afford, nothing further need be added to the deſcription of this ſort.

3. 4. *The two ſorts with ſtriped leaves* are the Common Tree-Box variegated; though they have a different appearance in their manner of growth, as well as in their ſtriped leaves. They will grow indeed to be as tall; but the branches will be naturally more ſlender and weaker, and many of them will often hang downwards, which gives the tree a much different appearance from the plain Tree-Box, whoſe branches are naturally ſtraight and upright. The leaves of theſe ſorts being beautifully ſtriped, makes them coveted by thoſe who are fond of variegated trees.

5. *The Gold-edged Box* is ſtill the Tree-Box, in the ſame natural upright growth. The branches of this are not ſo weak as thoſe of the former ſorts, but are upright and ſtrong. Their bark is rather yellower than the green ſort: in other reſpects there is no difference, except that the leaves are tipped or edged with yellow; which is thought by many to be very ornamental to the ſhrub.

6. *The Curled-leaved Striped Box* is ſo called on account of its leaves being a little waved. This, together with the Narrow-leaved, is the ſcarceſt of all the ſorts; and is indeed, like that, a very elegant ſhrub. It is certainly a variety of the Common Tree-Box; but it ſeems rather of lower growth. Its leaves are waved; and they are variegated in ſuch a manner as to cauſe the ſhrub to have what HANBURY calls a luſcious look. It makes a variety from all the other ſorts, and is truly beautiful and pleaſing.

7. The DWARF BOX is a plant ſo well known as an edging to the borders of flower-gardens, that it needs no deſcription. It may be planted as an evergreen ſhrub among the lower ſorts.

The

The method of PROPAGATING the Box is perfectly eaſy: it may be raiſed from cuttings, or from the ſeed, or by layering. 1. For planting the cuttings, HANBURY ſays, the month of Auguſt is the beſt time, if any rain falls. If none ſhould happen, then the work muſt be deferred till it does. Indeed the cuttings may be planted with ſucceſs any time in the winter, even till the middle of April; but it is moſt prudent, if the ground is ready, to have this work done as ſoon as the firſt autumnal rains fall. Theſe cuttings ought to be of one and two years wood, ſhould be about a foot long, rather more than the half of which muſt be planted in the ground. A ſlip of the laſt year's wood, ſtripped from an older branch, is an excellent ſett, of which there will be little fear of its growing. The cuttings for the firſt raiſing of theſe trees ſhould be at about four inches diſtance in the beds; and, after they are planted, will need no trouble except watering in dry weather, and keeping clean from weeds, till about the third year after planting; for in all that time they will not be got too big for the *ſeed-beds*. The ſeaſon for tranſplanting theſe trees from the *ſeed-beds* to the nurſery is any time from Auguſt to April; though if they are to be tranſplanted early in the autumn, or late in the ſpring, moiſt weather ſhould be made choice of for this purpoſe. The diſtance theſe plants ſhould be placed at in the nurſery muſt be a foot aſunder, and two feet in the rows; and here they may ſtand till they are planted out. 2. The Box-Tree may be alſo propagated from ſeeds; and trees raiſed this way will often grow to a larger ſize. In order to raiſe this tree from ſeeds, let them be gathered when they are quite ripe, and juſt ready to burſt out of their cells, and ſoon after ſow them in a border of light ſandy earth, about half an inch deep. In the ſpring the plants will appear; though it ſometimes happens that they lie in the beds one whole ſeaſon before they come up, eſpecially if they happen to have been kept long before they were ſowed after being gathered. If they ſhould not appear in the ſpring, the beds muſt remain undiſturbed till the next, only keeping them free from weeds, and now and then giving them a gentle watering in dry weather. After they have made their appearance, they ſhould ſtand two or three years in the ſeed-bed, the firſt of which will require attendance by watering in dry weather. When they are ſtrong enough to

plant

plant out, they may be ſet in rows in the nurſery, as was directed for the cuttings. 3. The Box propagates itſelf by *layering*; for whether it be borne down by the weight of its own foliage, or be broken down by a fall of ſnow lodging upon its leaves and branches, it no ſooner comes into contact with the ground than it ſends forth fibres, and the branch layered (whether by nature, by accident, or by art) preſently forms to itſelf a detached root, which being ſevered from the main tree, a ſeparate plant is produced.

CALLICARPA.

LINNEAN Claſs and Order, *Tetrandria Monogynia*: Each flower contains four males and one female. There are two SPECIES; one of which is enured to our climate.

CALLICARPA *Americana*: The CALLICARPA; *a low deciduous ſhrub*; native of many parts of America, but particularly of Virginia and Carolina.

The CALLICARPA. The leaves are roundiſh, acute, pointed, and are near three inches in length. They are of a hoary caſt, being, like the youngeſt ſhoots, covered with a kind of woolly matter. They ſtand oppoſite by pairs on moderate footſtalks, and their edges are made delicate by beautiful ſmall ſerratures. The flowers are produced in whirls round the twigs, at the ſetting-on of the leaves, and are of a reddiſh-purple colour. Each flower ſeparately is ſmall and inconſiderable; though the whole number of which the whirls are compoſed form, together with the leaves and nature of the growth of the tree, a ſingular and pleaſing aſpect. Their appearance is uſually in July, and they are ſucceeded by ſucculent berries, which are at firſt red, and afterwards of a deep purple when ripe.

It is PROPAGATED, 1. By cuttings. When by cuttings, they ſhould be planted, in the ſpring, in a moiſt ſandy border. As the hot weather comes on, they ſhould be conſtantly ſhaded, and watered if the bed is not naturally very moiſt; and by this means

means many of the cuttings will ſtrike root, and become good plants. 2. By layers, which is a certain method, theſe plants may alſo be encreaſed. If a few plants are obtained for this purpoſe, they ſhould be planted in a warm well-ſheltered ſituation; and if the ſoil be naturally ſandy, it will be the better. The autumn after theſe ſtools have ſhot forth young wood, theſe young ſhoots ſhould be laid in the ground, and by the autumn following they will be fit to take off, either for the nurſery, or where they are to remain. 3. By ſeeds, which ſhould be ſown in a warm border of ſandy earth, a quarter of an inch deep, and ſhould be carefully ſhaded and the ſeedlings ſheltered; theſe plants being tender when young, though afterwards they are ſufficiently hardy.

CALYCANTHUS.

LINNEAN Claſs and Order, *Icoſandria Polygynia:* Each flower contains twenty males and numerous females. There are two SPECIES; namely, CALYCANTHUS *Precox*; not enured, we believe, to this climate; and

CALYCANTHUS *Floridus:* The FLOWERING CALYCANTHUS, or CAROLINA ALLSPICE TREE; *a deciduous aromatic ſhrub*; native of Carolina.

The FLOWERING CALYCANTHUS is a ſhrub which ſeldom grows, at leaſt with us, to more than five feet high. It divides into many branches irregularly near the ground. They are of a brown colour, and being bruiſed emit a moſt agreeable odour. The leaves that garniſh this delighful aromatic are of an oval figure, pointed: They are near four inches long, and are at leaſt two and a half broad, and are placed oppoſite by pairs on the branches. At the end of theſe ſtand the flowers, of a kind of chocolate-purple colour, and which are poſſeſſed of the oppoſite qualities of the bark on the branches. They ſtand ſingle on their ſhort footſtalks, come out in May and June, and are ſucceeded by ripe ſeeds in England.

The

The PROPAGATION of this ſhrub is not very difficult; tho' more than a common care muſt be taken, after ſmall plants are obtained, to preſerve them till they are of a ſize to be ventured abroad. The laſt year's ſhoots of this tree, if laid in the ground, the bark eſpecially being a little bruiſed, will ſtrike root within the compaſs of twelve months, particularly if the layers are ſhaded, and now and then watered in the ſummer's drought. In the ſpring they ſhould be taken off, and planted in pots; and if theſe are afforded a ſmall degree of heat in a bed, they will ſtrike ſo much the ſooner and ſtronger. After they have been in this bed a month or ſix weeks, they ſhould be taken out. In the heat of the ſummer they ſhould be placed in the ſhade; and if the pots are plunged into the natural ground, it will be ſo much the better. At the approach of the ſucceeding winter's bad weather, the pots ſhould be removed into the greenhouſe, or ſome ſhelter, and in the ſpring may reſume their old ſtations: and this ſhould be repeated till they are of a proper ſize and ſtrength to be planted out to ſtand. If the pots in which they were firſt planted were ſmall, they may be ſhifted into larger a ſpring or two after; and, when they have got to be pretty ſtrong plants, they may be turned out, mould and all, into the places where they are to remain. By this care of potting them, and houſing them during the ſevere weather in winter, the young crop will be preſerved; otherwiſe, if they were planted immediately abroad, the firſt hard froſt the enſuing winter would deſtroy them all: Tanner's bark about their roots will be the moſt proper ſecurity; as they are at beſt, when full grown, but tender plants, and muſt have the warmeſt ſituation and the drieſt ſoil.

CARPINUS.

LINNEAN Claſs and Order *Monoecia Polyandria:* Male flowers containing many ſtamens, and female flowers containing two piſtils diſpoſed in ſeparate catkins, upon the ſame plant: There are only two SPECIES:

1. CARPINUS *Betulus:* The COMMON HORNBEAM: a *deciduous tree,* native of Europe and America.

2. CAR-

2. CARPINUS *Oſtrya*: The HOP HORNBEAM; *a low deciduous tree*; native of Italy and of Virginia.

1. The COMMON HORNBEAM. This tree, it is ſaid, will grow ſo high as ſixty or ſeventy feet: we ſeldom ſee it, however, arrive at ſo great a height. Its leaves are of a darkiſh green, and about the ſize of thoſe of the Beech, but more pointed and deeply ſerrated. Its branches are long, flexible, and crooked; yet in their general appearance very much reſemble thoſe of the Beech: indeed there is ſo great a likeneſs between thoſe two trees, eſpecially in the ſhrubby underwood ſtate, that it would be difficult to diſtinguiſh them at the firſt glance, were it not for that gloſſy varniſh with which the leaves of the Beech are ſtrongly marked. In the days of EVELYN, when topiary work was the Gardener's idol, the Hornbeam might be conſidered as deſerving of thoſe *endearing* expreſſions which that enthuſiaſtic writer has been pleaſed to laviſh upon it: nevertheleſs, as an *ornamental* in *modern* gardening it ſtands low; and its *preſent uſes* are few. As an underwood it affords ſtakes and edders, fuel and charcoal. Its timber ranks with that of Beech and the Sycamore. The only ſuperior excellency of the Hornbeam lies in its fitneſs for SKREEN-FENCES for ſheltering gardens, nurſeries, and young plantations from the ſeverities of the winter ſeaſon. It may be trained to almoſt any height, and by keeping it trimmed on the ſides it becomes thick of branches, and conſequently thick of leaves; which being by their nature retained upon the plant after they wither, a Hornbeam-hedge occaſions a degree of ſhelter nearly equal to that given by a brick wall. Indeed, being leſs reflective than that expenſive ſkreen, it affords a more uniform temperature of air to the plants which ſtand near it. In this point of view, too, the Hornbeam is uſeful to be planted promiſcuouſly, or in alternate rows, amongſt more tender plants in expoſed ſituations, in the ſame manner as the Birch; to which it has more than one preference: namely, it is warmer in winter,—And, HANBURY ſays, the Hornbeam is peculiarly grateful to hares and rabbits; conſequently it may prevent their injuring its more valuable neighbours: yet, like EVELYN, he ſeems to be of opinion that it is diſaffected by deer. If this be really the caſe, the Hornbeam may upon many occaſions be introduced into deer-parks with ſingular propriety.

The Common Hornbeam may be PROPAGATED either by layering, (at almoſt any time of the year) or from ſeeds, in the following manner: In the autumn the ſeeds will be ripe; when, having gathered a ſufficient quantity for the purpoſe, let them be ſpread upon a mat a few days to dry. After this, they ſhould be ſown in the ſeminary-ground, in beds four feet wide, with an alley of about two feet, and from one to two inches deep. In this bed they muſt remain till the ſecond ſpring before they make their appearance; and all the ſummer they lie concealed, the weeds ſhould conſtantly be plucked up as ſoon as they peep; for if they are neglected they will get ſo ſtrong, and the fibres of their roots will be ſo far ſtruck down among the ſeeds, as to endanger the drawing many ſeeds out with them, on weeding the ground. After the young plants appear, they ſhould conſtantly be kept clear of weeds during the next ſummer; and if they were to be now and then gently refreſhed with water in dry weather, it would prove ſerviceable to them. In the ſpring following they may be taken out of theſe beds, and planted in the nurſery, in which ſituation they may remain till they are of a ſufficient ſize to plant out for ſtandards.

Of the Common Hornbeam there are three *Varieties*: The *Eaſtern Hornbeam*, *Flowering Hornbeam*, *American Hornbeam*.

The *Eaſtern Hornbeam* arrives to the leaſt height of all the ſorts; about ten feet is the fartheſt of its growth, and it looks pretty enough with trees of the ſame growth. The leaves are by no means ſo large as the common ſort; and as the branches are always cloſer in proportion to the ſmallneſs of the leaves, where a low hedge is wanted of the deciduous kind, this would not be an improper tree for the purpoſe, either to be kept ſheered, or ſuffered to grow in its natural ſtate. The bark of this ſort is more ſpotted than that of the Common.

The *Flowering Hornbeam* is the moſt free ſhooter of any of the ſorts; and will arrive to be the higheſt, the Common Hornbeam only excepted. It will grow to be thirty or forty feet high. The branches of this tree are leſs ſpotted with greyiſh ſpots than any of the other ſorts. The leaves are very rough, of a dark-green colour, and are longer than the common ſort. The property which the Common Hornbeam is poſſeſſed of, of

retaining

retaining its leaves all winter, does not belong to this ſort, the leaves of which conſtantly fall off in the autumn with other deciduous trees.

American Hornbeam is a more elegant tree than any of the former ſorts. The branches are ſlender, covered with a browniſh ſpeckled bark, and are more ſparingly ſent forth than from any of the others. The leaves are oblong, pointed, and of a paliſh green, and are not nearly ſo rough as the Common Hornbeam, though the flowers and fruit are produced in the ſame manner.

2. HOP HORNBEAM is of taller growth than the Eaſtern kind. It will arrive to the height of twenty feet, or more. The leaves are nearly the ſize of the common ſort, and ſome people admire this tree on account of the ſingular appearance it makes with its ſeeds, before they begin to fall. There is a *Variety* of this tree, which grows to thirty feet high, ſhoots freely, has long rough leaves like thoſe of the elm, and longiſh yellow-coloured flowers, called the Virginian Flowering Hop Hornbeam.

Theſe different ſorts of Hornbeam are to be PROPAGATED by layers; for which purpoſe a few plants for ſtools muſt be procured. The ſtools of the Eaſtern Hornbeam ſhould be planted a yard, and the other ſorts a yard and a half or two yards aſunder. After theſe plants have made ſome young ſhoots, they ſhould be layered in the autumn, and by that time twelvemonth they will have ſtruck root; at which time, or any time in the winter, or early in the ſpring, they ſhould be taken off, and planted in the nurſery-way, obſerving always to bruſh up the ſtool, that it may afford fine young ſhoots for freſh layering by the autumn following. The diſtance the plants ſhould be allowed in the nurſery need be no more than one foot, in rows that are two feet aſunder; and here they may ſtand, with the uſual nurſery care of weeding and digging the rows in winter, until they are to be finally planted out; though the Virginian Hornbeam will frequently ſend forth two ſhoots, which will ſeem to ſtrive for maſtery in the lead. When this is obſerved, the weakeſt ſhould always be taken away, otherwiſe the tree will grow forked.

CEANOTHUS.

LINNEAN Claſs and Order, *Pentandria Monogynia*: Each flower contains five males and one female. There are three SPECIES; one of which will bear the open air of this climate.

CEANOTHUS *Americana*: The NEW-JERSEY TEA, or the RED TWIG; *a low deciduous ſhrub*; native of North America.

The NEW-JERSEY TEA. The height to which it will grow in our country is about a yard. The ſtem, which is of a pale-brown colour, ſends out branches from the bottom. Theſe are thin, flexible, and of a reddiſh colour, which may have occaſioned this tree to go by the name of *Red Twig*. The leaves which ornament theſe branches ſtand on reddiſh pedicles, about half an inch in length. They are oval, ſerrated, pointed, about two inches and a half long, are proportionably broad, and have three nerves running lengthways. From the footſtalk to the point they are of a light-green colour, grow irregularly on the branches, and not oppoſite by pairs, as has been aſſerted. They are late in the ſpring before they ſhoot. The flowers grow at the ends of the twigs in cluſters: They are of a white colour, and when in blow give the ſhrub a moſt beautiful appearance. Indeed, it ſeems to be almoſt covered with them, as there is uſually a cluſter at the end of nearly every twig; and the leaves which appear among them ſerve as ornaments only, like myrtle in a diſtant noſegay: nature however has denied them ſmell. This tree will be in blow in July; and the flowers are ſucceeded by ſmall browniſh fruit, in which the ſeeds will ſometimes ripen in England.

The PROPAGATION of this plant is by layering; or from ſeeds ſown in pots of compoſt conſiſting of two parts virgin earth well tempered, and one part ſand, about a quarter of an inch deep; being equally careful to defend the young ſeedlings from an extremity of cold in winter as from the parching drought of the ſummer months. The beſt time of layering them is in the ſummer, juſt before they begin to flower: At that time lay the tender twigs of the ſpring ſhoots in the earth, and nip off the end which would produce the flowers. By the autumn

autumn twelvemonth ſome of them will be rooted. At the ſtools, however, the plants ſhould remain until the ſpring, when they ſhould be taken off, and the beſt-rooted and the ſtrongeſt may be planted in the nurſery-way, or in a dry ſoil and well-ſheltered place, where they are to remain; while the bad-rooted ones and the weakeſt ſhould be planted in pots; and if theſe are plunged into a moderate warmth of dung, it will promote their growth, and make them good plants before autumn. In the winter they ſhould be guarded againſt the froſts; and in the ſpring they may be planted out where they are to remain.

CELASTRUS.

LINNEAN Claſs and Order, *Pentandria Monogynia:* Each flower contains five males and one female. There are eleven SPECIES; two of which are to our purpoſe.

1. CELASTRUS *Bullatus:* The STAFF-TREE; *an uncertain-deciduous ſhrub*; native of Virginia.

2. CELASTRUS *Scandens:* The CLIMBING STAFF-TREE, or BASTARD EVONYMUS; a *climber*; native of Canada.

1. The STAFF-TREE is a ſhrub of about four feet in growth, riſing from the ground with ſeveral ſtalks, which divide into many branches, and are covered with a browniſh bark. The leaves are of a fine green colour, and grow alternately on the branches. They are of an oval figure, and have their edges undivided. The flowers are produced in July, at the ends of the branches, in looſe ſpikes. They are of a white colour, and in their native countries are ſucceeded by very ornamental ſcarlet fruit; but with us this ſeldom happens.

It is eaſily PROPAGATED from ſeeds ſown, about an inch deep, in beds of good freſh mould made fine. They ſeldom come up until the ſecond, and ſometimes not before the third ſpring. This ſpecies is alſo PROPAGATED by layers; and, to be conciſe, the work muſt be performed on the young wood, in the autumn, by a ſlit at the joint. Theſe layers may be expected to ſtrike root

by the autumn following; when they may be taken up and planted in the nurſery-ground. This ſhrub muſt have a well-ſheltered ſituation, otherwiſe the leaves are apt to fall off at the approach of froſty weather. And MILLAR ſays, that, growing naturally in moiſt places, it will not thrive well in a dry ſoil.

2. The CLIMBING STAFF-TREE. The ſtalks are woody, twining, and will riſe by the help of neighbouring trees or buſhes to the height of twelve feet. The leaves are oblong, ſerrated, of a pleaſant green colour, pale, and veined underneath, and grow alternately on the branches. The flowers are produced in ſmall bunches, from the ſides of the branches, near the ends. They are of a greeniſh colour, appear in June; and are ſucceeded by roundiſh, red, three-cornered capſules, containing ripe ſeeds, in the autumn.

The plant is exceeding hardy, and makes a beautiful appearance among other trees in the autumn, by their beautiful red berries, which much reſemble thoſe of the Spindle-tree, and will be produced in vaſt profuſion on the tops of other trees, to the height of which theſe plants by their twiſting property aſpire. They ſhould not be planted near weak or tender trees, to climb on; for they embrace the ſtalks ſo cloſely as to bring on death to any but the hardieſt trees and ſhrubs.

It is PROPAGATED, 1. By laying down the young ſhoots in the ſpring. By the autumn they will have ſtruck root, and may then be taken off and ſet in the places where they are deſigned to remain. 2. They are alſo propagated by ſeeds. Theſe ſhould be ſoon ſown after they are ripe, otherwiſe they will be two, and ſometimes three years before they come up. When they make their appearance, nothing more need be done than keeping them clear from weeds all ſummer and the winter following; and in the ſpring the ſtrongeſt plants may be drawn out, and ſet in the nurſery for a year, and then removed to the places where they are deſigned to remain; whilſt the weakeſt, being left in the ſeed-bed one year more, may undergo the ſame diſcipline.

CELTIS.

LINNEAN Claſs and Order, *Polygamia Monoecia.* Hermaphrodite flowers, containing five ſtamens and two piſtils, and male flowers containing five ſtamens. There are three SPECIES.

1. CELTIS *Auſtralis:* The SOUTHERN CELTIS, or the BLACK-FRUITED NETTLE-TREE, or LOTE-TREE; *a deciduous tree*; native of Africa and the South of Europe.

2. CELTIS *Occidentalis:* The WESTERN CELTIS, or the PURPLE-FRUITED or OCCIDENTAL NETTLE-TREE; *a deciduous tree*; native of Virginia.

3. CELTIS *Orientalis:* or the EASTERN CELTIS; or YELLOW-FRUITED or ORIENTAL NETTLE-TREE; *a deciduous ſhrub*; native of Armenia.

1. The SOUTHERN CELTIS.

2. The WESTERN CELTIS.

Theſe two ſpecies grow with large, fair, ſtraight ſtems; their branches are numerous and diffuſe; their bark is of a darkiſh grey colour; their leaves are of a pleaſant green, three or four inches long, deeply ſerrated, end in a narrow point, nearly reſemble the leaves of the common ſtinging-nettle, and continue on the trees till late in the autumn: So that one may eaſily conceive what an agreeable variety theſe trees would make. Add to this, their ſhade is admirable. The leaves are late in the ſpring before they ſhew themſelves; but they make amends for this, by retaining their verdure till near the cloſe of autumn, and then do not reſemble moſt deciduous trees, whoſe leaves ſhew their approaching fall by the change of their colour; but continue to exhibit themſelves of a pleaſant green, even to the laſt.

HANBURY ſpeaks highly of the Celtis as a timber-tree: he ſays, "The wood of the Lote-Tree is extremely durable. In Italy they make their flutes, pipes, and other wind inſtruments of it. With us the coach-makers uſe it for the frames of their vehicles." MILLAR mentions alſo the wood of the *Occidentalis* being uſed by the coach-makers.

The two ſpecies of Tree-Celtis are PROPAGATED from ſeeds, which ripen in England, if they have a favourable autumn; but the foreign ſeeds are the moſt certain of producing a crop. Theſe ſeeds ſhould be ſown, ſoon after they are ripe, either in boxes, or in a fine warm border of rich earth, a quarter of an inch deep; and in the following ſpring many of the young plants will appear, tho' a great part often lie till the ſecond ſpring before they ſhew their heads. If the ſeeds in the beds ſhoot early in the ſpring, they ſhould be hooped, and protected by mats from the froſts, which would nip them in the bud. When all danger from froſts is over, the mats ſhould be laid aſide till the parching beams of the ſun get powerful; when, in the day-time, they may be laid over the hoops again, to ſcreen the plants from injury. The mats ſhould be conſtantly taken off every night, and the young plants ſhould never be covered either in rainy or cloudy weather. During the whole ſummer, theſe ſeedlings ſhould be frequently watered in dry weather, and the beds kept clean of weeds, &c. In the autumn, they muſt be protected from the froſts, which often come early in that ſeaſon, and would not fail to deſtroy their tops. The like care ſhould be continued all winter, to defend them from the ſame enemies. In this ſeminary they may remain, being kept clean of weeds and watered in dry weather, till the end of June, when they ſhould be taken out of their beds, and planted in others at ſix inches diſtance. And here let no one (continues HANBURY) be ſtartled at my recommending the month of June for this work; for I have found by repeated experience, that the plants will be then almoſt certain of growing, and will continue their ſhoots till the autumn; whereas I have ever perceived, that many of thoſe planted in March have frequently periſhed, and that thoſe which did grow made hardly any ſhoot that year, and ſhewed the early figure of a ſtunted tree. In June, therefore, let the ground be well dug, and prepared for this work; and let the mould be rich and good: But the operation of removing muſt be deferred till rain comes; and if the ſeaſon ſhould be dry, this work may be poſtponed till the middle of July. After a ſhower, therefore, or a night's rain, let the plants be taken out of their beds, and pricked out at ſix inches diſtance from each other. After this, the beds in

which

which they are planted ſhould be hooped, and covered with mats when the ſun ſhines; but theſe muſt always be taken away at night, as well as in rainy or cloudy weather. With this management, they will have ſhot to a good height by the autumn, and have acquired ſo much hardineſs and ſtrength as to need no farther care than to be kept clear of weeds for two or three years; when they may be planted out in places where they are to remain, or ſet in the nurſery, to be trained up for large ſtandards.

The beſt ſeaſon for planting out theſe ſtandard trees is the latter end of October, or beginning of November; and in performing that operation, the uſual rules muſt be obſerved, with care.

The ſoil for the Lote-tree ſhould be light, and in good heart; and the ſituation ought to be well defended, the young ſhoots being very liable to be deſtroyed by the winter's froſts.

3. The EASTERN CELTIS. The height to which this ſpecies will grow is no more than about twelve feet; and the branches are many, ſmooth, and of a greeniſh colour. The leaves are ſmaller than thoſe of the other ſorts, though they are of a thicker texture, and of a lighter green. The flowers come out from the wings of the leaves, on ſlender footſtalks: They are yellowiſh, appear early in the ſpring, and are ſucceeded by large yellow fruit.

The CULTURE of this ſpecies is the ſame, and the plants may be raiſed in the ſame manner as the other two ſorts, only let this all along have a peculiarly dry ſoil, and a well-ſheltered ſituation, otherwiſe it will not bear the cold of our winters.

CEPHALANTHUS.

LINNEAN Claſs and Order, *Tetrandria Monogynia*: Each flower contains four males and one female. There is only one SPECIES.

CEPHALANTHUS *Occidentalis*: The CEPHALANTHUS, or BUTTON-WOOD; *a deciduous ſhrub*; native of North America.

The

The CEPHALANTHUS grows to about five or ſix feet high. It is not a very buſhy plant, as the branches are always placed thinly in proportion to the ſize of the leaves, which will grow more than three inches long, and one and a half broad, if the trees are planted in a ſoil they like. The leaves ſtand oppoſite by pairs on the twigs, and alſo ſometimes by threes, and are of a light-green colour: Their upper ſurface is ſmooth; they have a ſtrong nerve running from the footſtalk to the point, and ſeveral others from that on each ſide to the borders: Theſe, as well as the footſtalks, in the autumn die to a reddiſh colour. The flowers, which are aggregate flowers, properly ſo called, are produced at the ends of the branches, in globular heads, in July. The florets which compoſe theſe heads are funnel-ſhaped, of a yellow colour, and faſtened to an axis which is in the middle.

The PROPAGATION of the Cephalanthus is from ſeeds, which we receive from America. Theſe ſhould be ſown as ſoon as they arrive, and there will be a chance of their coming up the firſt ſpring; though they often lie till the ſpring after before they make their appearance. They may be ſown in good garden mould of almoſt any ſoil, if ſomewhat moiſt the better, and ſhould be covered about a quarter of an inch deep. This ſhrub is alſo propagated by layers. If the young ſhoots are laid in the autumn, they will have ſtruck good root by the autumn following, and may be then taken up, and ſet in the places where they are deſigned to remain. Cuttings of this tree, alſo, planted in the autumn in a rich, light, moiſt ſoil will grow: and by that means alſo plenty of theſe plants may be ſoon obtained.

CERCIS.

LINNEAN Claſs and Order, *Decandria Monogynia:* Each flower contains ten males and one female. There are only two SPECIES.

1. CERCIS

1. CERCIS *Siliquaſtrum*: The COMMON JUDAS-TREE, or the ITALIAN CERCIS; a tall *deciduous flowering ſhrub*; native of Italy and other parts of the South of Europe.

2. CERCIS *Canadenſis*: The CANADIAN JUDAS-TREE, or the RED BUD, or the CANADIAN CERCIS; *a deciduous flowering ſhrub*; native of Canada, Virginia, and other parts of America.

1. The COMMON JUDAS-TREES differ in the height of their growth in different places: In ſome they will arrive to be fine trees, of near twenty feet high; whilſt in others they will not riſe to more than ten or twelve feet, ſending forth young branches irregularly from the very bottom. The ſtem of this tree is of a dark-greyiſh colour, and the branches, which are few and irregular, have a purpliſh caſt. The leaves are ſmooth, heart-ſhaped, and roundiſh, of a pleaſant green on their upper ſurface, hoary underneath, and grow alternately on long footſtalks. The flowers are of a fine purple: They come out early in the ſpring, in cluſters, from the ſide of the branches, growing upon ſhort footſtalks; and in ſome ſituations they are ſucceeded by long flat pods, containing the ſeeds, which, in very favourable ſeaſons, ripen in England. Some people are fond of eating theſe flowers in ſallads, on which account alone in ſome parts this tree is propagated. The *varieties* of this ſpecies are, 1. The Fleſh-coloured; 2. The White-flowered; and, 3. The Broad-podded Judas-tree.

2. CANADA JUDAS-TREE will grow to the ſize of the firſt ſort in ſome places. The branches are alſo irregular. The leaves are cordated, downy, and placed alternately. The flowers uſually are of a paliſh red colour, and ſhew themſelves likewiſe in the ſpring, before the leaves are grown to their ſize. Theſe too are often eaten in ſallads, and afford an excellent pickle. There is a variety of this with deep red, and another with purple flowers. The pleaſure which theſe trees will afford in a plantation may be eaſily conceived, not only as they exhibit their flowers in cluſters, in different colours, early in the ſpring, before the leaves are grown to ſuch a ſize as to hide them; but from the difference of the upper and lower ſurface of the leaves; the one being of a fine green, the other of a hoary caſt; ſo that on the ſame tree, even in this reſpect, is ſhewn variety; an improvement where-

of

of is made by the waving winds, which will preſent them alternately to view.

As theſe ſpecies will not take root by layers, they muſt be PROPAGATED by ſeeds, which may be had from abroad. They are generally brought us ſound and good, and may be ſown in the months of February or March. Making any particular compoſt for their reception is unneceſſary; common garden mould, of almoſt every ſort, will do very well: And this being well dug, and cleared of all roots, weeds, &c. lines may be drawn for the beds. The mould being fine, part of it ſhould be taken out, and ſifted over the ſeeds, after they are ſown, about half an inch thick. Part of the ſeeds will come up in the ſpring, and the others will remain until the ſpring following; ſo that whoever is deſirous of drawing the ſeedlings of a year old to plant out, muſt not deſtroy the bed, but draw them carefully out, and after that there will be a ſucceeding crop. However, be this as it will, the ſeeds being come up, they muſt be weeded, and encouraged by watering in the dry ſeaſon; and they will require no farther care during the firſt ſummer. In the winter alſo they may be left to themſelves, for they are very hardy; tho' not ſo much but that the ends of the branches will be killed by the froſt, nay, ſometimes to the very bottom of the young plant, where it will ſhoot out again afreſh in the ſpring. Whoever, therefore, is deſirous of ſecuring his ſeedling-plants from this evil, ſhould have his beds hooped, in order to throw mats over them during the hard froſts. Toward the latter end of March, or beginning of April, the plants having been in the ſeed-bed one or two years, they ſhould be taken out, and planted in the nurſery: The diſtance of one foot aſunder, and two feet in the rows, ſhould be given them. Hoeing the weeds down in the ſummer muſt alſo be allowed, as well as digging between the rows in the winter. Here they may ſtand until they are to be removed finally; but they muſt be gone over in the winter with the knife, and ſuch irregular branches taken off as are produced near the root; by which management the tree may be trained up to a regular ſtem. Such, continues HANBURY, is the culture of the ſpecies of Cercis; ſorts that are not to be omitted where there are any pretenſions to a collection. Beſides, the wood itſelf is of great value; for it

poliſhes

poliſhes exceeding well, and is admirably veined with black and green.

CHIONANTHUS.

LINNEAN Claſs and Order, *Diandria Monogynia:* Each flower contains two males and one female. There are two Species: CHIONANTHUS *Zeylonica*; and

CHIONANTHUS *Virginica:* The SNOW-DROP-TREE, or the FRINGE-TREE, or the VIRGINIAN CHIONANTHUS; *a tall deciduous ſhrub*; native of Virginia and other parts of North America.

The SNOW-DROP-TREE. This ſhrub will grow to the height of about fifteen feet, and, until late years, was very rarely to be met with in our gardens. The ſtem of it is rough, and of a dark-brown colour. The leaves are large, ſhaped like a laurel, broad and roundiſh, of a fine deep green on their upper ſurface, but rather hoary. The flowers come out in bunches, in May, from every part of the tree: They are of a pure white; and, in the places where it grows naturally, this muſt be a moſt delightful plant; for at that ſeaſon it exhibits its white flowers in bunches all over it, ſo as to reſemble a tree covered with ſnow. The few trees we have ſeldom flower; and even when they do, the flowers are few, and make no great figure. Whoever is deſirous of raiſing this ſhrub muſt plant it in a moiſt part of the garden, which is well defended with other trees; for there he will have a chance of ſeeing the flowers (which are ſucceeded by black berries, of a moderate ſize) in more plenty, and in greater perfection.

The CULTURE of this tree is not very eaſy; for if we attempt to propagate it by layers, theſe are with difficulty made to ſtrike root; and if we obtain good ſeeds from abroad, great care and management muſt be uſed, to make them to be ſtrong plants, fit to be ſet out to ſtand. By layers and ſeeds, however, this tree may be encreaſed; and, 1. When layers is the method adopted, let the plants deſigned for ſtools be ſet in a very moiſt

place,

place, where the ſoil is rich and good. After theſe ſtools have thrown out young ſhoots, they ſhould be layered in the autumn. If there be many twigs of the ſummer's growth to be layered, different methods may be uſed on the different twigs; for no one particular method can be depended on, and yet they will grow by almoſt all. One time the layering has been performed by a ſmall ſlit at the joint; another twig has had a gentle twiſt, ſo as to juſt break the bark; a third has been wired. The ſlit-layers, after three or four years, have only ſwelled to a knob, without any fibres; while the twiſted parts have ſhot out fibres, and become good plants. At other times, the twiſted part, after waiting the ſame number of years, has ſtill remained in the ground as a branch without any root; whilſt the ſlit-twig, in the mean time, has become a good plant. The like uncertainty has been found to attend the other manner of layering. To propagate the Snow-drop tree this way, every method ſhould be uſed; and then there will be a greater chance of having ſome plants; but, at the beſt, you muſt not expect them with good roots, until they have lain in the ground about three years; for it is very rarely that they are to be obtained ſooner. The layers ſhould be taken from the ſtools the latter end of March, and planted in pots, Theſe ſhould be plunged into a hotbed; and, after they have ſtruck root, ſhould be uſed to the open air. In May they may be taken out, and plunged in the natural ſoil, in a moiſt ſhady place. When the froſt comes on, they ſhould be removed into the greenhouſe, or ſet under a hotbed-frame for protection; and in the ſpring they may be turned out of the pots, with the mould, into the places where they are to remain, which ought to be naturally moiſt and well ſheltered. 2. From ſeeds: they muſt be ſown in large pots, about half an inch deep, in a ſtrong ſandy loam, plunging the pots into a moiſt ſhady place in ſummer, and in winter removing them into the greenhouſe or under hotbed frames.

Millar ſays, "This ſhrub delights in a moiſt, ſoft, loamy ſoil; and is ſubject to decay in dry ſoils and hot ſeaſons."

CISTUS.

CISTUS.

LINNEAN Claſs and Order, *Polyandria Monogynia*: Each flower contains numerous males and one female. There are no leſs than forty-three SPECIES of this genus of plants, moſt of which are herbaceous, or herbaceous-ſhrubby; of the thirteen arboreſcent ſpecies, twelve are naturalized to this climate.

1. CISTUS *Populifolius*: The POPLAR-LEAVED CISTUS, or ROCK-ROSE; *an evergreen ſhrub*; native of Spain and Portugal.

2. CISTUS *Laurifolius*: The BAY-LEAVED CISTUS, or ROCK-ROSE; *an evergreen ſhrub*; native of Spain.

3. CISTUS *Ladaniferus*: The LADANUM CISTUS, or ROCK-ROSE; *an evergreen ſhrub*; native of Spain, Italy, Crete, and the South of France.

4. CISTUS *Incanus*: The HOARY CISTUS, or HOARY-LEAVED ROCK-ROSE; *a low evergreen ſhrub*; native of Spain and the South of France.

5. CISTUS *Monſpelienſis*: The MONTPELIER CISTUS, or GUM CISTUS of MONTPELIER; *an evergreen ſhrub*; native of the South of France.

6. CISTUS *Albidus*: The WHITE CISTUS, or OBLONG WHITE-LEAVED ROCK-ROSE; *an evergreen ſhrub*; native of Spain, Portugal, and France.

7. CISTUS *Salvifolius*: The SAGE-LEAVED CISTUS, or ROCK-ROSE; *a low evergreen ſhrub*; native of France, Italy, and Sicily.

8. CISTUS *Criſpus*: The CURLED CISTUS, or WAVED-LEAVED ROCK-ROSE; *an evergreen ſhrub*; native of Luſitania.

9. CISTUS *Halimifolius*: The HALIMUS-LEAVED CISTUS, or SEA-PURSLAIN-LEAVED ROCK-ROSE; *a low evergreen ſhrub*; grows common near the ſea-ſhore in Spain and Portugal.

10. CISTUS *Villoſus*: The SHAGGY-LEAVED CISTUS, or SPANISH ROUND-LEAVED ROCK-ROSE; *a low evergreen ſhrub*; native of Italy and Spain.

11. CISTUS *Creticus*: The CRETAN CISTUS, or ROCK-ROSE; *a low evergreen ſhrub*; native of Crete and Syria.

12. CISTUS *Libanotis*: The FRANKINCENSE CISTUS, or NARROW-LEAVED SPANISH ROCK-ROSE; *a low evergreen ſhrub*; native of Spain.

1. The POPLAR-LEAVED CISTUS is a ſhrub of about ſix feet in height, though it begins its bloom when lower than two feet. The branches have no regular way of growth, and are covered with a brown bark, which will be lighter or darker according to the different ſoils. The leaves are cordated, ſmooth, pointed, have footſtalks, and a little reſemblance to thoſe of the Black Poplar. Old Botaniſts have diſtinguiſhed two ſpecies of this ſort, which they called the Major and the Minor, the one being of larger growth than the other; but modern improvements ſhew theſe to be varieties only. The flowers are white, and produced about Midſummer, in plenty, at the ends and ſides of the branches. They are of ſhort continuance; but there will be a ſucceſſion kept up for near ſix weeks, during which time the ſhrub will have great beauty.

2. BAY-LEAVED CISTUS is an irregular branching ſhrub, of about the ſame height with the former. The leaves are oval, pointed, and in the Midſummer months are very clammy. Their upper ſurface is of a ſtrong green, but their under is white, and they grow on footſtalks which join together at their baſe. The flowers are produced from the ends and ſides of the branches, about Midſummer. They are white, and ſtand on naked footſtalks; and being large, and produced in plenty at that time, make a good figure. This ſpecies is rather tender, and requires a warm, dry ſoil, and a well ſheltered ſituation.

3. The LADANUM CISTUS is ſo called, becauſe the Ladanum of the ſhops is collected from this ſhrub. There are many varieties of it differing in the colour of the flowers, or in ſome reſpect or other; and the tree, with its varieties, will grow to be ſix or more feet high; though it produces its flowers and exhibits great beauty when very low. It riſes with a woody ſtem; and tho' it produces its branches in no regular manner, yet it has the appearance of a well-faſhioned ſhrub. The leaves are of a lanceolate figure. Their upper ſurface is ſmooth, and of a fine green colour, but their under is whitiſh and veined. They are ſcented; and have footſtalks that join together at their baſe. The flowers are very large and delicate, and are produced all over the ſhrub in plenty. They exhibit themſelves about the uſual

time:

time: Many of them are of a pure white, with a deep purple ſpot at the bottom of each petal; whilſt others again from theſe afford a variety, being of a purple colour, or having their edges of a reddiſh tinge. The beauty of this tree, when in blow, is often over, in very hot weather, by eleven o'clock in the morning; but that is renewed every day; and for about ſix weeks ſucceſſively a morning's walk will be rendered delightful by the renewed bounties which they beſtow.

4. The HOARY CISTUS is a ſhrub of about four feet high, and forms itſelf into a buſhy head. There are four or five varieties of this ſort, that have been looked upon by ſome authors as diſtinct ſpecies; but experience now teaches us better. The leaves of all are hoary; but they differ often in ſhape, ſize or figure; and this has occaſioned their being named accordingly, and to be diſtinguiſhed by the names of Common Hoary-leaved Ciſtus; the Long-leaved Hoary Male Ciſtus: the Rounder-leaved Male Ciſtus; the Large Hoary-leaved Male Ciſtus, &c. When theſe different ſorts can be procured, they make the plantations more agreeable. The leaves of theſe ſorts of Ciſtus ſit cloſe to the branches, are hairy, and rough on both ſides. Their figure will be different on the ſame plant, and be produced in different manners: thoſe on the tops of the branches are ſpear-ſhaped, and grow ſingly; but the lower ones are oval, and joined together at their baſe. All of them are hoary, though ſome of the ſorts are whiter than others; and theſe leaves make a good contraſt with the ſtronger greens during the winter months. Theſe ſhrubs produce their flowers earlier than the other ſorts; they often ſhew ſome in May. They are of a purple colour, which, in different ſorts, will be ſtronger or lighter. They fall away in the evening; but are conſtantly renewed, for a month or longer, by a ſucceſſion every morning.

5. The GUM CISTUS OF MONTPELIER is commonly of about four feet growth, though, like the others, it is very beautiful when no higher than one or two feet. The branches proceed from the bottom of the plant, in plenty; they are hairy, tough, and ſlender. Their leaves are lanceolated, exſude a very fragrant matter, are hairy on both ſides, have three veins running lengthways, are of a dark-green colour, and ſit cloſe to the

branches. The flowers are produced in their greateſt plenty about Midſummer, and ſometimes earlier, on long footſtalks, at the ends of the branches. They are white, and the ſucceſſion of the blow will be continued often longer than ſix weeks.

6. WHITE CISTUS will grow to be five or ſix feet high; and the younger branches, which will grow in an upright manner, are tough, and covered with a woolly ſubſtance. The leaves are oblong, very white, downy, trinervous, and ſit cloſe, ſurrounding the ſtalk at the baſe. The flowers are produced from the ends of the branches, at the beginning of June. They are large, of a fine purple colour, and look very beautiful.

7. The SAGE-LEAVED CISTUS is a much lower ſhrub, and the branches are many, ſpreading, and ſlender. The leaves reſemble thoſe of ſome of the ſorts of ſage-plants. They are oval, on both ſides hairy, and have very ſhort footſtalks. The flowers are produced in June, from the wings of the leaves. They are white, and ſtand on naked footſtalks; and though they are ſmaller than ſome of the other ſorts, yet being produced all over the ſhrub, they make a fine ſhow.

8. The CURLED CISTUS is of about four or five feet growth. The branches are very many, and ſpreading. The leaves are ſpear-ſhaped, waved, hairy, naturally bend backwards, and grow oppoſite by pairs on the braches. The flowers are produced from the wings of the leaves in June. Their colour is white. The ſucceſſion will be kept up for a month, or longer.

9. The SEA-PURSLAIN-LEAVED CISTUS is a ſhrub of about four feet growth, and ſends forth many branches in an upright pretty manner. The younger branches are downy, and the leaves have ſome little reſemblance to the Sea-Purſlain; though there are varieties of this ſpecies with broader and narrower leaves; ſome that approach to an oval, and others that are ſharp-pointed. They grow oppoſite by pairs, and make a good variety by their white and hoary look. The flowers are produced in June and July on very long, naked footſtalks, which ſupport others alſo with ſhorter footſtalks. They are of a fine yellow colour, and make a good figure when in blow. This is the moſt tender of all the ſorts, and is generally treated as a greenhouſe plant; but if the ſoil be naturally dry and warm, and the ſituation well-ſheltered, it will do very well abroad in

our tolerably open winters. It may be adviſeable, however, to ſecure a plant or two in the greenhouſe, that, in caſe a very ſevere winter ſhould happen to kill thoſe abroad, a freſh ſtock may be raiſed from the thus-preſerved plants.

10. SPANISH ROUND-LEAVED CISTUS. This is a branching ſhrub, of about a yard or four feet high. The leaves are oval, round, hairy, and placed on footſtalks on the branches. The flowers come out in plenty from the tops and ſides of the branches, in July. Their colour is purple; and though they are very fugacious, yet there will be a ſucceſſion of them for a long time.

11. CRETAN CISTUS. This is a branching ſhrub, of about the ſame height with the former. The leaves are ſpatulated, oval, enervous, rough, and grow on footſtalks on the branches. The flowers are red; and they make their appearance about the ſame time with the former.

12. SPANISH NARROW-LEAVED CISTUS. This riſes with a ſhrubby, naked, purple-coloured ſtalk, to about four feet high. The leaves are narrow, light, reflexed on their ſides, and grow oppoſite to each other without any footſtalks. The flowers grow in ſmall umbels, and come out from the ends and ſides of the branches, on long ſlender footſtalks. Their colour is white; and their appearance is about the ſame time with the former.

All the ſorts of Ciſtus are PROPAGATED by ſeeds and cuttings. 1. Seeds is the beſt way, as by them the moſt handſome plants are produced, though they will not always afford ſo great a plenty of flowers as the plants raiſed from cuttings. When they are to be raiſed by ſeeds, a moderate hotbed ſhould be in readineſs for their reception by the beginning of March; and they ſhould be ſown in drills a quarter of an inch deep. A dry day ſhould be made choice of for the purpoſe, and pegs ſhould be ſtuck to ſhew the extremity of the drills. The drills may be made two inches aſunder; and the bed being neated up, no other covering will be neceſſary than an old mat, to guard the plants, when coming up, from the ſpring froſts which may happen; for if the ſeeds are good, you may expect many plants to appear in leſs than a month; at which time they ſhould be covered in the night, but be always kept uncovered in open and fine weather. As the dry weather comes on, they muſt be watered

moderately every other morning, and the weeds conſtantly cleared off; and as the ſummer heat encreaſes, the mats uſed to guard them from the froſt in the night, muſt change their office: They muſt never come near them in the night, but only protect them from the ſcorching heat in the middle of the day. By the latter end of Auguſt many of the plants will be four or five inches high; when they may be thinned, and thoſe drawn out either pricked in the nurſery-ground, in beds at ſmall diſtances, in well-ſheltered places, or planted in pots, to be ſecured in the winter, and turned out at leiſure. Of all the ſorts, the Bay-leaved and the Sea Purſlain-leaved ſpecies, with all their varieties, require this treatment. The reſt are all very hardy. Thoſe that are pricked out in rows in the nurſery will immediately ſtrike root: and, as well as thoſe left in the old hotbed, if they are in well-ſheltered places will do without any protection. If the place is not well defended, either by trees or hedges, it will be proper to prick ſome furze-buſhes all around, to break the keen edge of the ſevere froſts. Thoſe left in the old bed ſhould be planted out in the ſpring in the nurſery-ground; and in a ſpring or two after this, they ſhould all be planted out where they are to remain; for none of theſe plants ſucceed ſo well if removed when grown old and woody. 2. Theſe plants are eaſily raiſed by cuttings; and plants raiſed this way are often the beſt flowerers, though their manner of growth is not always ſo upright and beautiful. Auguſt is the month for this work; and if a dripping day happens in that month, it muſt be made choice of; if not, a bed of fine mould muſt be prepared, and the cuttings ſhould be planted a few inches aſunder; and after that ſhould be watered to ſettle the mould to them. The beds ſhould be hooped; and the next day, as the heat of the ſun comes on, they ſhould be covered with mats: This covering ſhould be repeated, obſerving always to uncover them in the evenings, and alſo in moiſt and cloudy weather. Theſe cuttings will take root in a very little time; and their after management may be the ſame as the ſeedlings.

CLEMATIS.

LINNEAN Claſs and Order, *Polyandria Polygynia*: Each flower contains many males and many females. There are thirteen SPECIES, ten climbing, and three erect: Eight of the former have been introduced into this country.

1. CLEMATIS *Viticella*: The VIRGIN'S BOWER; *a deciduous climber*; native of Italy and Spain.

2. CLEMATIS *Viorna*: The VIRGINIA CLIMBER, or the PURPLE CLIMBER; *a deciduous climber*; native of Virginia and Carolina.

3. CLEMATIS *Criſpa*: The CAROLINA CLIMBER, or the CURLED PURPLE CLIMBER; *a deciduous climber*; native of the Eaſt.

4. CLEMATIS *Orientalis*: The ORIENTAL CLIMBER; *a deciduous climber*; native of the Eaſt.

5. CLEMATIS *Vitalba*: The TRAVELLER'S JOY, or OLD MAN'S BEARD, or BIND-WITH; *a deciduous climber*; growing naturally in the hedges of England, and moſt of the northern parts of Europe; alſo in Virginia and in Jamaica.

6. CLEMATIS *Cirrhoſa*: The EVERGREEN CLEMATIS, or EVERGREEN SPANISH CLIMBER; *an evergreen climber*; native of Spain and Portugal.

7. CLEMATIS *Flammula*: The CREEPING CLIMBER; *a deciduous climber*; native of the South of Europe.

8. CLEMATIS *Virginiana*: The SWEET-SCENTED CLEMATIS, or the SWEET-SCENTED AMERICAN CLIMBER; *a deciduous climber*; native of North America.

1. VIRGIN'S BOWER. Of this ſpecies of Clematis there are the following *Varieties*:

Double Purple Virgin's Bower.
Single Purple Virgin's Bower.
Single Blue Virgin's Bower.
Single Red Virgin's Bower.

Double Purple Virgin's Bower. This ſort ſtands firſt on the liſt, not only becauſe it is an admirable climber, but alſo is poſſeſſed of a large double flower. It will grow to the

height of twenty or thirty feet, if ſupported; and is very proper to cover arbours, as well as walls, hedges, &c. The branches are of a dark-brown or duſky colour, angular and channelled. The younger branches are of a fine green colour, and nearly ſquare: They are very numerous, and grow from the joints of the older; and thus they multiply in that manner from the bottom to the top of the plant. The leaves alſo grow from the joints: They are both compound and decompound *. The folioles, of which each is compoſed, are of an oval figure, and their edges are entire; and in ſummer, when the plant is in full leaf, if ſet alone to form an arbour, after it is ſaid to be grown ſtrong, the branches and large leaves will be produced in ſuch plenty, as not only effectually to procure ſhade, but even to keep off a moderate ſhower; ſo excellently is this plant adapted to this purpoſe; and more particularly ſo, as it will grow, when it has properly taken to the ground, fifteen or ſixteen feet in one year. The flowers are double, and of a purple colour: They blow in July and Auguſt, and are ſucceeded by no ſeeds, the multiplicity of the petals entirely deſtroying the organs of generation.

The *Single Purple Virgin's Bower* is rather a ſtronger ſhooter than the Double, and will climb to rather a ſtill greater height. The Double is only a ſub-variety of this, which ought not to be neglected; for this exhibits a fair flower, compoſed of four large petals, in the center of which are ſeated the numerous ſtamina.

The *Single Blue Virgin's Bower* produces its ſhoots, leaves, and flowers, in the ſame manner as the other; and makes a variety only in that the flowers are of a blue colour.

The *Single Red* is of much lower growth, and ſeems of a more delicate and tender nature; not but it is hardy enough to endure any weather; but its ſhoots are weak, and ſhort in proportion. They are angular, and channelled in the manner of the other; but they are of a reddiſh colour. The leaves are ſmaller than the other ſorts, and the flowers alſo are ſmaller, though they make a fine variety, by their colour being red. Theſe all flower at the ſame time; but are ſucceeded by no ornamental ſeeds.

* Doubly compound.

2. VIR-

2. Virginia Climber. The branches are ſlender and numerous; and the leaves, as in the Virgin's Bower, are both compound and decompound. The folioles grow by threes, and theſe are often multiplied to form a decompound leaf of nine in number. They are nearly cordated, of a good green, and ſome of them are trifid. The flowers are produced in July and Auguſt, from the wings of the leaves. They are a kind of blue colour; and the petals (which are four in number), of which each is compoſed, are of a thick coriaceous ſubſtance. This ſort will ſometimes ripen its ſeeds in England.

3. Carolina Climber. This is by ſome called the Curled-flowering Climber; and indeed by that name it is chiefly diſtinguiſhed in our gardens. It is one of the lower kind of climbers; ſeldom ariſing, by the aſſiſtance of its claſpers, to more than ſix feet. The ſtalks are very weak and ſlender. The leaves afford great variety, being ſometimes trifoliate and ſometimes ſingle. The folioles alſo differ much; for ſome of them are found whole and entire, whilſt others again are divided into three lobes. Theſe leaves are of a dark-green colour, and are produced oppoſite, from the joints of the ſtalks. The flowers are produced in July and Auguſt, on ſhort footſtalks, below which a pair or more of oblong pointed leaves often grow. Theſe flowers are compoſed of four thick, coriaceous, purple, curled petals. This ſpecies will for the moſt part produce ripe ſeeds in our gardens.

4. Oriental Climber is no great rambler; for, notwithſtanding its ſlender ſtalks are well furniſhed with claſpers, it is ſeldom found to climb higher than about ten feet. The leaves of this ſort are compound. The folioles are cut angularly, and the lobes are ſhaped like a wedge. They are of a good green colour, and are very ornamental to the plant. The flowers are produced from the wings of the leaves early; for it will often be in blow in April. They are of a kind of yellowiſh-green colour, and the petals naturally turn backwards. Theſe flowers differing in colour from the above ſorts, and coming earlier in the ſpring, make it more deſirable, as it teſtifies how many months in the ſummer are ornamented with the blow of ſome one or other ſpecies of Clematis. The ſeeds of this ſort alſo will often ripen with us.

5. Traveller's Joy is a noble climber, and well known in many parts of England; the hedges where it abounds being frequently covered with it: But its greateſt ſingularity is in winter; at which time it more peculiarly invites the traveller's attention. The branches of this ſpecies are very thick and tough, ſufficient to make withs for faggots; and for this purpoſe it is always uſed in the woods where it can be got. Theſe are ſo numerous, and produce ſide-branches in ſuch plenty, which divide alſo into others, that they will over-top hedges, or almoſt any thing they can lay hold of to climb by. Beſides the claſpers with which it is furniſhed, the very leaves have a tendency to twine round plants. Theſe leaves are pinnated; and a variety is occaſioned by them; for the folioles of ſome ſorts are indented at their edges, whilſt others are found with their edges entire. They are of a blueiſh-green, and moderately large. The flowers are produced in June, July, and Auguſt, all over the plant, in cluſters. They are ſucceeded by flat ſeeds, each of which, when ripe, is poſſeſſed of a white hairy plume, and growing in cluſters will exhibit themſelves in winter all over the tops of buſhes, hedges, &c. which at that time will look beautiful and ſingular. This is the *Viorna* of old Botaniſts; and is called Traveller's Joy from its thus ornamenting hedges, buſhes, &c. to the entertainment of the traveller.

6. Evergreen Clematis. This is but a low climber, ſeldom growing higher than ſix or eight feet. The branches are very numerous, weak, and ſlender; but it riſes by claſpers, which naturally lay hold on any thing near them. The footſtalks of the leaves, alſo, will twine round twigs, &c. ſo that they become claſpers, and enſure the hold of the plant. Nay, if there be no hedge or plant near, by which they may hold and riſe, they will twine among themſelves; and as the branches are produced in great plenty, they will be ſo mixed one amongſt another, as to form a low thicket, which makes this plant well adapted to produce variety in evergreen ſhrubbery-quarters, where, if planted ſingly, at a diſtance from other trees, it will naturally form itſelf into a thick buſh. Theſe leaves are ſometimes cut into three lobes, ſometimes into two, and many of them are undivided. The lobes when moſt perfect are nearly lanceolate, have their edges indented, and are of as fine a ſhining green as can be conceived.

ceived. The flowers are produced in the midſt of winter, from the ſides of the branches: They are of a greeniſh colour, though inclined to a white; but the petals being pretty large, and blooming at that unuſual ſeaſon, makes this plant highly valuable.

7. CREEPING CLEMATIS, or *Flammula*, will mount by the aſſiſtance of other plants to a good height, ſometimes near twenty feet. The ſtalks are ſlender and numerous; and the leaves are in this reſpect ſingular; for the lower ones are pinnated, and their edges are jagged; but the upper ones grow ſingle. They are of a lanceolate figure, and their edges are entire. The flowers of this ſpecies are exhibited in June, July, and Auguſt. They are white, and by ſome admired.

8. SWEET-SCENTED CLEMATIS. This ſort will riſe, by the aſſiſtance of neighbouring buſhes and trees, to a great height. The branches are many, ſpread themſelves all around, and lay hold of every thing that is near them. The leaves are ternate. The folioles are heart-ſhaped, angular, and nearly cut into three lobes. The flowers are white, and, being poſſeſſed of a moſt agreeable fragrance, render this climber highly proper for arbours, and to be ſtationed near ſeats and places of reſort.

Theſe are all the hardy climbing ſpecies of this genus yet known. The *varieties* of the firſt kind are notable, and afford as much diverſity in a garden as if they were diſtinct ſpecies. The other ſorts alſo admit of varieties; but the difference is very inconſiderable, and makes little variety, as they nearly agree with ſome or other of the above ſorts.

The PROPAGATION of all theſe ſorts is by layers; and this is beſt done in ſummer on the young ſhoots as they grow. As ſoon, therefore, as they have ſhot about a yard or four feet in length, let the ground be well dug about each ſtool, and made fine, and a gentle hollow made about a foot from the ſtool. In this hollow let the young ſhoots be preſſed, and covered with mould, leaving their ends out to continue growing. In a very little time they will be a yard or more in length; when a ſecond hollow may be made, at a diſtance from the other, and the ſhoots preſſed down and covered with mould as before, the ends being ſtill left out to grow. On ſome of the long ſhooting ſorts this may be repeated again, and even again; and theſe ſhoots,

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thus layered, will ſtrike root. Many of the ſorts will have good root by the autumn; and others muſt be waited for until the autumn following. This ſummer-method of layering is highly neceſſary; becauſe ſome of the ſorts, particularly the Virgin's Bower, if layered in winter in the common way, will be often two whole years, nay ſometimes three, before they will ſtrike root. Any time from autumn to ſpring the layers may be taken up; and from one ſtool ſome ſcores are often obtained. Thoſe with good roots may be ſet out to remain; and every bit that has a fibre ſhould be cut off below that fibre, and ſhould be headed to one eye or joint above the part that had been out of the ground; and thus all the layers being collected together ſhould be planted in the nurſery at ſmall diſtances, and in a year or two they alſo will be good plants for uſe.

The TRAVELLER'S JOY may be layered at any time, for the roots will eaſily ſtrike; nay, they will grow by cuttings.

The EVERGREEN SPANISH CLIMBER requires no art or trouble to encreaſe it; for it will encreaſe itſelf if the ground is left undiſturbed a year or two, and will throw out plenty of ſuckers, which will have roots, and be good plants.

CLETHRA.

LINNEAN Claſs and Order, *Decandria Monogynia:* Each flower containing ten males and one female. There is only one known SPECIES:

CLETHRA *Alnifolia:* The ALDER-LEAVED CLETHRA, or the AMERICAN ALDER; *a deciduous aquatic ſhrub*; growing naturally in Virginia, Carolina and Pennſylvania, like our Alder, by the ſides of rivers and watery places.

The CLETHRA is ſhrub, with us, about four or five feet high, tho' in its native ſoil it is ſometimes found ſo high as eight or ten feet. The branches it ſends forth are not numerous, and theſe are garniſhed with leaves, which are ſpear-ſhaped and

ſerrated. They are about three inches long, an inch and a half broad, and have ſhort footſtalks. The *Clethra* uſually flowers in July. The flowers are produced at the ends of the branches, in long ſpikes: They are white, and poſſeſſed of a ſtrong ſcent. This plant, at preſent, is not very common in our gardens.

The CULTURE of this ſhrub is by layers, ſeeds, and ſuckers. 1. The plants deſigned to be encreaſed by layers ſhould be ſet in the moiſteſt part of the garden, and managed like thoſe of the CHIONANTHUS. 2. By ſeeds,—which alſo ſhould be ſown and managed the ſame as CHIONANTHUS. 3. Theſe ſhrubs will very often ſend out ſuckers, by which they may likewiſe be propagated. Theſe may be taken off in the autumn, if they have good roots, and planted out in the nurſery-way: if they have not, they ſhould be let alone till March; then taken up, and planted in pots of good loamy ſoil, and afterwards plunged into a moderate warmth of dung; which will promote their growth. The autumn following they will be fit to be planted out to ſtand.

C N E O R U M.

LINNEAN Claſs and Order, *Triandria Monogynia:* Each flower contains three males and one female. There is only one SPECIES:

CNEORUM *Tricoccon*: The CNEORUM, or WIDOW-WAIL: *a low evergreen ſhrub*; native of dry gravelly places in Spain, Italy, and France.

The CNEORUM, or WIDOW-WAIL, is a ſhrub of about a yard in growth, and is an excellent one for the front of evergreen quarters, where the loweſt ſhrubs are to be placed. The wood of this tree is very hard, and the older branches are covered with a brown bark. The ſtem naturally divides into many branches; and the bark on the youngeſt is ſmooth, and of a pale-green colour. The leaves are ſmooth, of a fine dark-green colour, and conſtitute the greateſt beauty of this ſhrub. They are of an oblong figure, and very long in proportion to the breadth:

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They will be two inches or more long, and about half an inch in breadth. Their under ſurface is of rather a paler green than their upper, and their baſe joins to the young branches without any footſtalk. The flowers are yellow, and make no great ſhow. A healthy plant may be expected to be in blow moſt part of the ſummer. They grow from the wings of the leaves, towards the ends of the branches; and are ſucceeded by the ſeeds, which grow together by threes; which will be of a dark-brown or black when they are ripe.

CNEORUM may be PROPAGATED by ſeeds or by cuttings. 1. By ſeeds. Theſe ſhould be gathered in October, and be thoſe which have grown from the firſt flowers of the ſhrub that ſummer, and which will be then black, or nearly ſo, if ripe. They ſhould be ſown, in a bed of common garden-mould made fine, about half an inch deep. One may expect to ſee the plants come up in the ſpring; though it often happens that the greateſt part of them remain until the ſecond ſpring before they appear. 2. Theſe plants may be encreaſed by cuttings; but they never make ſuch beautiful ſhrubs; neither is the method worth practiſing if ſeeds can be obtained. The cuttings may be planted in ſpring; then it will be neceſſary to ſet them in pots, and give them the aſſiſtance of an hotbed; and this will ſet them a-growing. The beginning of Auguſt is a very good time for planting theſe cuttings or ſlips. They ſhould be planted in beds of good fine mould; and theſe ſhould be hooped, and matted from nine o'clock in the morning until near ſun-ſet. Then they ſhould be uncovered, and remain ſo in all cloudy and rainy weather. Moſt of theſe cuttings will grow; and there they may remain without removing until they are ſet out for good.

When theſe ſhrubs are to be planted out, the moſt dry and gravelly ſpots muſt be choſen for them; and in theſe places they will bid defiance to our ſevereſt weather; though in ſuch a ſoil they will not grow ſo high as in a moiſt fat ſoil, by a foot or more, which is conſiderable in a ſhrub of ſuch a natural low growth; but it is neceſſary for them to be planted in a dry or gravelly ſoil, becauſe there they will be ſecure from injury by froſts.

COLUTEA.

LINNEAN Claſs and Order, *Diadelphia Decandria:* Each flower contains ten males and one female, the males ſtanding in two diviſions. There are three SPECIES; one of which is herbaceous, and another a ſhrub, too delicate for the open air of this climate; the third has long been an ornament to the Engliſh garden.

COLUTEA *Arboreſcens:* The BLADDER-SENA; a well known *deciduous ſhrub*; native of the South of Europe, particularly about Mount Veſuvius.

The BLADDER-SENA ſports in the following *varieties*; all of which are beautiful in their kind, and afford delight both by their flowers and leaves; viz. 1. The Common Bladder-Sena. 2. The Oriental Bladder-Sena. 3. Pocock's Bladder-Sena. 4. The Red-podded Bladder-Sena.

The *Common Bladder-Sena* is the talleſt grower of all the ſorts. It will arrive to the height of about ten or twelve feet. The branches are of a whitiſh colour, which diſtinguiſh it in the winter, and the leaves in the ſummer have a pleaſing effect. They are pinnated; the folioles are oval, and indented at the top; they conſiſt of ſometimes four, ſometimes five pair, placed oppoſite, and are terminated by an odd one. The flowers are of the butterfly kind: They are produced in June, July, and Auguſt, in cluſters; are numerous, of a yellow colour, and the footſtalk that ſupports them is long and ſlender. The flowers are ſucceeded by large inflated pods, like bladders, which catch the attention of thoſe who have never before ſeen them. This tree has variety enough of itſelf to make it eſteemed; but it ſhould always be planted among other trees of the ſame growth, to break the force of the ſtrong winds; not but that it is hardy enough to reſiſt our ſevereſt winters, but the branches will eaſily ſplit, which will make it unſightly, unleſs they are ſheltered in ſome degree by other trees. This ſort will ripen its ſeeds in the autumn.

The *Oriental Colutea* will grow to the height of about five or ſix feet. The branches of this tree alſo are greyiſh, and the leaves pinnated, as well as terminated by an odd one, and the lobes are obverſely cordated and ſmall. The flowers are reddiſh,

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ſpotted with yellow, and grow from the ſides of the branches on footſtalks, each of which is formed ſometimes with two, ſometimes with three flowers. This tree is extremely hardy; and as it does not grow to the ſize of the common ſort, nor in ſo luxuriant a manner, the branches will not be ſo liable to be ſplit off by the winds; and therefore the precaution neceſſary for that, in this ſort may be the leſs obſerved.

Pocock's Bladder-Sena is another variety, of lower growth than the common ſort. The leaves are pinnated, and the folioles ſtand oppoſite by pairs in both the kinds. They are indented in the ſame manner at the top; neither can I perceive any other difference between this and the Common Bladder-Sena, only that the one is larger than the other, and the flowers come out earlier in the year.

The *Red-podded Bladder-Sena* is alſo a variety, which will happen in common to all the ſorts, more or leſs, when raiſed from ſeeds.

Theſe trees are all very eaſily PROPAGATED. 1. By ſeeds. Any time in the ſpring will do for the work, though the month of March is the beſt ſeaſon; and no other compoſt will be required than garden-mould of almoſt any ſort, dug and raked fine. If the ſeeds are ſown about half an inch deep, they will come up like corn in a month or two after. Keep the beds weeded until the ſpring following; and then plant them out in the nurſery-way, obſerving always to ſhorten the tap-root which they often have. In a year or two they will be good and proper plants for the ſhrubbery. 2. Theſe trees may alſo be propagated by layers; and that is the method generally practiſed with Pocock's ſort, to continue it in its low growth.

CORNUS.

LINNEAN Claſs and Order, *Tetrandria Monogynia*: Each flower contains four males and one female. There are eight SPECIES; three of which are adapted to ornamental gardening.

1. CORNUS *Maſcula*: The CORNELIAN CHERRY; *a tall deciduous ſhrub*; growing naturally in the hedges of Auſtria.

2. CORNUS

2. CORNUS *Sanguinea*: The COMMON DOGWOOD, or BLOODY-TWIG; *a deciduous ſhrub*; common in our hedges, and is natural to moſt parts of Europe, Aſia, and America.

3. CORNUS *Florida*: The VIRGINIAN DOGWOOD, or FLOWERING CORNUS; *a deciduous ſhrub*; native of Virginia.

1. The CORNELIAN CHERRY will riſe to twenty feet high. Its principal merit as an *ornamental* lies in its flowering early in the ſpring, and in exhibiting its beautiful ſcarlet berries in autumn. Its *uſes* are held out as numerous. Its fruit was formerly in good eſteem; and its wood is ſaid to be uſeful for wheel-work, pins, hedges, &c. It is arranged by EVELYN and HANBURY among Foreſt-trees.

2. The COMMON DOGWOOD is well-known all over England, as it grows naturally in moſt parts of the kingdom; a few of theſe trees are nevertheleſs admiſſible into the ſhrubbery, if they are not already too common in its neighbourhood; for the young twigs are red, eſpecially in winter, which look well at that ſeaſon, as do alſo its flowers in the ſummer, and its leaves in the autumn. The redneſs of theſe young ſhoots has occaſioned this ſort to go by the name *Bloody-Twig*. The leaves are about two inches long, and an inch and a half broad: Theſe have large nerves, which terminate in a point, and they often die in the autumn to a reddiſh colour. The flowers are white, produced in umbels at the ends of the branches, and are ſucceeded by black berries, like thoſe of the Buckthorn, but have in each only one ſtone. The wood, it is ſaid, makes the beſt kind of charcoal in the world for gunpowder. It is brittle, exceedingly white, and when growing is covered with a dark-brown bark, the twigs being red.

3. VIRGINIAN DOGWOOD will grow rather higher than our Common Dogwood. The twigs are of a beautiful red. The leaves are obverſely cordated. The flowers are produced in large bunches ſomewhat like thoſe of the Elder: Their colour is white; they come out in May and June, and the berries ripen in autumn.

From theſe ſpecies, the following beautiful *varieties* figure in our nurſeries; viz. Female Virginian Dogwood; American Blue-berried Dogwood; White-berried Dogwood of Pennſylvania; and Swamp Dogwood.

Female

Female Virginian Dogwood, during the winter months, exhibits its branches of ſo beautiful a red colour, as to diſtinguiſh itſelf to all at that ſeaſon. It grows to eight or ten feet high; the leaves are ſomewhat ſpear-ſhaped, acute, nervous, and in the autumn die to a fine red. The flowers come out in umbels, at the ends of the branches: They appear in May and June, and the berries ripen in the autumn.

The *American Blue-berried Dogwood* arrives at the height of about eight or nine feet. The twigs of this tree alſo are of a delightful red. The leaves are large, oval, and hoary on their under-ſide. The flowers are white, come out in umbels from the extremity of the branches, and are ſucceeded by large, oval, blue berries, which make a fine appearance in the autumn.

White-berried Dogwood arrives at the ſame ſize with the others. The young ſhoots, like thoſe of the former, are of a beautiful red colour during the winter. Like them, alſo, it produces its white flowers in large umbels in May; but they are ſucceeded by white berries in the autumn.

Swamp Dogwood grows naturally in moiſt places, almoſt all over America; and it will grow with us in almoſt any ſoil or ſituation. The leaves of this are of a much whiter colour than any of the other ſorts; though the flowers and fruit are produced in the ſame manner.

One method of PROPAGATION is common to all theſe ſorts of *Cornus*; though this may be effected three ways; by ſeeds, layers, and cuttings. 1. The ſeeds of the common ſort ſhould be ſown in the autumn, ſoon after they are ripe; and theſe will come up in the ſpring. The ſeeds of the American ſorts we generally receive in the ſpring: Theſe ſhould be ſown directly; but they will not come up till the ſpring following; nor would thoſe of our common ſort, if they were kept until the ſpring before they were ſown. No particular art is required for theſe ſeeds. They will grow in common garden-mould of almoſt any ſort, though the richer it is the better. This muſt be made fine, cleared of all roots, weeds, &c. and the ſeeds ſhould be ſown about half an inch deep. The ſpring after the plants come up, they ſhould be planted in the nurſery, at a ſmall diſtance from each other, where they may ſtand for two or three years, and then be planted out to ſtand. 2. Theſe trees may be eaſily propagated by layers; for after having obtained

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ſome plants for the purpoſe, if the ſhoots that were made the preceding ſummer be only laid in the ground in the autumn, they will have good roots by the autumn following. Theſe may be taken off, and planted in the nurſery for a year or two, as the ſeedlings; and the ſtools being cleared of all ſtraggling branches, and refreſhed with a knife, they will make ſtrong ſhoots for a ſecond operation by the autumn next enſuing. 3. By cuttings likewiſe theſe ſorts may be propagated. This work ſhould be done in October; and the cuttings for the purpoſe ſhould be the ſtrongeſt part of the laſt year's ſhoot, that had ſhot vigorouſly from a healthy ſoil. If theſe are cut into lengths of about a foot long, and planted in a moiſtiſh ſoil, three parts deep, they will grow, and make good ſhoots the ſummer following; and theſe will require no removing before they are planted out finally.

CORIARIA.

LINNEAN Claſs and Order, *Dioecia Decandria*: Male flowers containing ten ſtamina, and female flowers containing five piſtils upon diſtinct plants: There are two SPECIES; one of which will bear the open air of this climate.

CORIARIA *Myrtifolia*: The MYRTLE-LEAVED SUMACH, or TANNER'S SUMACH; *a deciduous ſhrub*; grows naturally about Montpelier in France, where it is ſaid to be uſed by the tanners in tanning of leather.

The MYRTLE-LEAVED SUMACH is a ſhrub of lowiſh growth, ſeldom arriving to more than four or five feet high. The bark is of a greyiſh colour, and ſpotted. The wood is very brittle, and very full of light pith. The young ſhoots are produced in great plenty from the bottom to the top: They are ſquare, and come out three or four together, from one ſide of the ſtem, whilſt the other ſide is often furniſhed with an equal number. The leaves reſemble ſome of the ſorts of Myrtle, which gave occaſion for its being called the Myrtle-leaved Sumach: They are oblong, pointed, of a bright-green, and ſtand oppoſite by pairs on the twigs. The flowers grow in ſpikes, at the ends and

ſides of the branches, and have little beauty to recommend them. The tree is planted, however, as a flowering ſhrub, amongſt others of its own growth; but the place in which it is ſet ſhould be well ſheltered; for notwithſtanding this is a very hardy ſhrub, yet the ends of the branches are often killed in the winter, which makes the plant unſightly in the ſpring.

The PROPAGATION of the *Coriaria* is very eaſy. No other art need be uſed, than, after having obtained a few plants, to plant them in a lightiſh ſoil of any ſort. Here they will propagate themſelves in great plenty; for they will (what gardeners call) *ſpawn*; *i. e.* their creeping roots will ſend forth many young plants, at more than three yards diſtance from the real plant. The ſtrongeſt of theſe may be taken up, and planted where they are to remain, whilſt the weaker may be ſet in the nurſery-way, to gain ſtrength, before they are ſet out for good. In this eaſy manner may plenty of theſe ſhrubs be obtained; and every winter after they are taken up, if the mould about the mother-plant be raked ſmooth, and weeded in ſummer, ſhe will afford you a freſh crop by the autumn following, which may be taken off and planted as before.

CORONILLA.

LINNEAN Claſs and Order, *Diadelphia Decandria*: Each flower contains ten males and one female, the males being divided at the baſe into two ſets. There are eleven SPECIES; two of them herbaceous, the reſt of a ligneous nature; but only one of them has been introduced into our ſhrubberies.

CORONILLA *Emerus*: The SCORPION SENA, or JOINTED-PODDED COLUTEA; *a deciduous ſhrub*; native of the South of Europe.

The SCORPION SENA ſends out numerous irregular branches from the root and on all ſides; the oldeſt and moſt woody of which are of a greyiſh colour, whilſt the youngeſt are ſmooth, and of a dark-brown. The leaves are pinnated, and conſtitute a great beauty in this ſhrub, being of a pleaſant green, and are compoſed of three pair of folicles, which are terminated by an

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odd one; theſe ſtand oppoſite on the midrib, and each has an indenture at the top. Theſe leaves, by a proper fermentation, will afford a dye nearly like that of indigo. However, beautiful as the leaves are, it is the flowers which conſtitute the beauty of theſe ſhrubs; and, indeed, of all the ſhrubby tribe, there is none more ſtriking or pleaſing than this when in full blow. This uſually happens in May; when it will be covered all over with bloom, the ſhrub itſelf appearing as one large flower divided into many looſe ſpikes; for the flowers come out all along the ſides of the branches by the leaves, on long footſtalks, each ſupporting two or three flowers, which are butterfly-ſhaped, of a yellowiſh colour, and large in proportion to the ſize of the ſhrub. They are ſucceeded by longiſh pods, in which the ſeeds are contained. This ſhrub often flowers again in the autumn.

There is a *variety* of lower growth, called *Dwarf Scorpion Sena*.

This beautiful ſhrub is very readily PROPAGATED, either by ſeeds, layers, or cuttings; any of which may be eaſily made to grow. 1. By ſeeds. Theſe ſhould be ſown, in the ſpring, in beds of common garden-mould made fine, and cleared of the roots of all weeds, &c. They ſhould be covered about half an inch deep; and, if a very dry ſpring does not enſue, they will be up in about a month or ſix weeks. If this ſhould happen, the beds muſt be now and then watered, and ſhaded from the heat of the ſun, which ſometimes is very intenſe and parching, even at the beginning of May. They may ſtand in the ſeed-bed two years before they are taken up; all which time they will want no other care than weeding; and if they have watering the firſt ſummer, ſhould it prove a dry one, they will grow the faſter. After this, they may be taken out of the ſeed-bed, planted in the nurſery-way, and in about two or three years will be good plants to join in the ſhrubbery. 2. By layers. This buſineſs may be performed any time in the winter; but as the ſhrub ſends forth numerous branches, many of them ſhould be taken off, and only ſuch a number left, as that they may be laid into the ground without crowding one another. The branches ſhould be of the laſt year's ſhoot; and the operation ſhould be performed by a gentle twiſt, ſo as juſt to break the bark; for, ſays HANBURY, without this I have found them in the autumn juſt as they were when layered; and with this, they have always

ſtruck root, ſo as to be fit to take off the winter following. Theſe layers ſhould be planted out in the nurſery; and after having ſtood about two years, they alſo will be grown to be good plants. 3. By cuttings. The cuttings ſhould be the ſtrongeſt of the laſt year's ſhoots. They ſhould be planted cloſe, in October, in a ſhady border of good fine mould. If the ſpring and ſummer prove dry, watering muſt be afforded them every other day; and by this means many plants may be raiſed. If the cuttings are planted cloſe, and moſt of them grow, they ſhould be thinned, by taking up ſo many as may leave the others at a foot or more aſunder; and theſe plants alſo, thus taken up, ſhould be ſet out in the nurſery-ground a foot aſunder, in rows at a foot and a half diſtance; where they may ſtand until they are finally taken up.

CORYLUS.

LINNEAN Claſs and Order, *Monoecia Polyandria:* Male and female flowers upon the ſame plant: The males, containing ten ſtamina each, are collected in cylindrical catkins; the females, containing two piſtils each, iſſue from the point of the leaf-bud: There are two SPECIES.

1. CORYLUS *Avellana:* The HAZEL; a well-known *tall deciduous ſhrub*; very common in this country, and in moſt parts of Europe.

2. CORYLUS *Colurna*: The BYZANTINE NUT, or DWARF NUT TREE; *a low deciduous ſhrub*; growing naturally near Conſtantinople.

The HAZEL will grow to twenty feet high and upwards. A particular deſcription of it here would be ſuperfluous. LINNEUS conſiders the various kinds of FILBERTS as *Varieties* of the common Hazel, improved by culture. MILLAR was of a different opinion: he ſays, "I have ſeveral times propagated both from the nuts, but never have found them vary from the other, though they have altered in the ſize and colour of their fruit from the ſorts which were ſown;" he therefore divides them into two diſtinct ſpecies: But HANBURY on the other hand ſays, that

that they "are varieties only of the ſame ſpecies; for I have planted the nuts of all the ſorts, and ſorts of all kinds have been produced from them." (Page 111.) As an *Ornamental*, the Hazel is of an inferior claſs; nevertheleſs, in recluſe quarters, the Filbert may be introduced with propriety: the idea of utility aſſociated with that real ornament which is undoubtedly given by the various tints of the leaves of the different kinds and colours of Filberts, may probably afford more real ſatisfaction, eſpecially to the owner, than the tranſient glare of a uſeleſs exotic. Be this as it may, the Hazel in point of *uſe* ſtands high; as an underwood it has no ſuperior: indeed, the Oak and Aſh excepted, the huſbandman knows not ſo uſeful a wood as the Hazel. For ſtakes, edders and withs it is in uſe every where. In Surry, Kent, and other ſouthern counties where numerous flocks of ſheep are kept, the Hazel alone ſupplies the farmer with folding-hurdles; and in Yorkſhire and other parts of the North of England, from whence great quantities of butter are ſent to the London market, the hoops or firkin-rods are gathered almoſt wholly from this uſeful ſhrub.

2. The BYZANTINE NUT. This is diſtinguiſhed from the other ſpecies chiefly by the ſtipulæ, which are very narrow and acute, whereas thoſe of the common nut are oval and obtuſe. It differs alſo in the ſize of its growth, the true Bizantine Nut-tree ſeldom growing higher than four or five feet; and hence the name *Dwarf Nut-tree* has been uſed for this plant. In other reſpects, it is like our common nut-tree; it flowers at the ſame time, the fruit is produced in cluſters, and it ripens accordingly.

The method of PROPAGATING the Hazel kind is from ſeeds, by layering, or from the ſuckers, which it ſpontaneouſly ſends up in great plenty. The *Nuts* ſhould be ſown about two inches deep, in February; until which time they ſhould be kept in a cool, moiſt place to prevent the kernels from becoming dry and ſhrivelled, yet ſufficiently airy to prevent their growing mouldy. The *Varieties* are beſt preſerved by layering; for which purpoſe a few plants ſhould be procured of the moſt valuable kinds, and planted for ſtools. They will grow on almoſt any ſoil; and the young twigs being laid in the ground in the autumn, will have ſtruck root by the autumn following. Theſe ſhould be taken off, and planted in the nurſery, a foot

aſunder, and two feet diſtant in the rows; and if there be any young ſhoots made the intermediate ſummer, they alſo may be laid down, or the plant headed within half a foot of the ground, to ſend forth young ſhoots for a ſecond operation the autumn following. By this means the ſorts may be propagated, and kept diſtinct; for the ſeeds ſown of any of them will not in general come to good; though it is obſervable, that from the beſt nuts there will be the beſt chance of having good nuts again; and "I have (ſays HANBURY) ſometimes known ſome few trees, raiſed from ſeeds, which have produced nuts better than thoſe they were raiſed from. This may, perhaps, induce a gardener deſirous of obtaining a great variety to try this method, when he may extirpate the worſt ſorts, and, if any ſhould be worthy of it, may propagate the others in the manner directed."

CRATÆGUS.

LINNEAN Claſs and Order, *Icoſandria Digynia:* Each flower contains about twenty males and two females: There are ten SPECIES; eight of which add conſiderable beauty to the modern garden.

1. CRATÆGUS *Oxicanthus:* The HAWTHORN, or WHITE THORN; a well-known *deciduous tree or ſhrub*; common with us, and growing naturally all over Europe.

2. CRATÆGUS *Azarolus:* The AZAROLE; *a tall deciduous ſhrub*; native of Italy and the South of France.

3. CRATÆGUS *Aria:* The WHITE LEAF; or the WHITE BEAM, or the ARIA, or the ARIA THEOPHRASTI; *a deciduous tree or ſhrub*; grows naturally upon the hills of Kent and Surry, particularly near Box-hill; and in moſt of the cold parts of Europe.

4. CRATÆGUS *Torminalis:* The WILD SERVICE, or the MAPLE-LEAVED SERVICE TREE; *a deciduous tree*; native of England, Germany, Switzerland, and Burgundy.

5. CRATÆGUS *Coccinea:* The VIRGINIA AZAROLE; *a tall deciduous ſhrub*; native of Virginia and Canada.

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6. CRATÆGUS *Crus Galli:* The COCKSPUR HAWTHORN; *a tall deciduous ſhrub*; native of Virginia.

7. CRATÆGUS *Tomentoſa:* The GOOSEBERRY-LEAVED VIRGINIA HAWTHORN; *a deciduous ſhrub*; native of Virginia.

8. CRATÆGUS *Viridis:* The GREEN-LEAVED VIRGINIA HAWTHORN; *a deciduous ſhrub*; native of Virginia.

1. The HAWTHORN, in the ſtate in which we are uſed to obſerve it, is nothing better than a tall, uncouth, irregular ſhrub; but trained up as a ſtandard, it ſwells to a large timber ſize, with a tall ſtem and a full ſpreading head; though we believe it ſeldom riſes to a great height; perhaps not often ſo high as thirty feet. We have meaſured the ſtem of a youthful thriving Hawthorn eight feet high, and five feet and a half in circumference, with a head proportionable. Mr. Marſham * mentions one near Bethel-Church, in the neighbourhood of Norwich, which, at four feet high, girted, in the year 1755, nine feet one inch and a quarter, one of its arms extending more than ſeven yards. The Standard Hawthorn, whether we view its flowers in the ſpring, its foliage in the ſummer, or its fruit in the autumn and winter, is one of the moſt *ornamental* plants, ſtanding ſingly, that can be ſcattered over a park or lawn. Its *uſes* will be explained when we come to treat of HEDGES.

In order to PROPAGATE a quantity of *Quick*, one method is generally practiſed; namely, firſt burying the haws, and taking them up to ſow the October following; though, ſays HANBURY, there is another way more preferable; namely, to prepare the beds, and ſow the haws ſoon after they are gathered. Whoever purſues the former method, having gathered what quantity of haws will anſwer his purpoſe, ſhould in ſome bye-corner of the kitchen-garden or nurſery dig an hole or pit capacious enough to receive them; ſome of the earth which came out of the hole, after the haws are put in it, ſhould be laid upon them; and, being thus carefully covered down, they may remain there till October. Then, having ground well dug, and cleared of the roots of all troubleſome weeds, and the mould being fit for working, the beds ſhould be made for the haws. Four feet is a very good width for theſe beds, as they may be

* Of Norfolk, in a Letter publiſhed in the Firſt Volume of the Papers of the Bath Agriculture Society.

eaſily reached over to be weeded; and if the alleys between be each one foot and a half wide, they will be of a good ſize. The beds being marked out with a line, ſufficient mould muſt be raked out to cover the haws an inch and a half deep. This being done, and the bottom of the beds being made level and even, the haws ſhould be ſown, and afterwards gently tapped down with the back of the ſpade; and then the fine mould, which had been raked out of the beds, muſt be thrown over them, covering them an inch and a half deep. In the ſpring the plants will come up, and in the ſummer following ſhould be kept clear of weeds; though it does ſometimes happen, that few of them will appear till the ſecond ſpring after ſowing. Sometimes the young plants are planted out from the ſeed-beds at one, two, or three years old; but the beſt plants are obtained by tranſplanting them into freſh mould the firſt or ſecond year, letting them remain in the nurſery two or three years longer. The practice of the London Nurſerymen is this: The ſtrongeſt of the ſeed-bed plants having been drawn at two or three years old for ſale, they clear the beds entirely by drawing the remaining weak underling plants, and tranſplanting them into freſh beds in this manner (which they call *bedding* them): The ground having been trenched, and the tips of the plants as well as the lower fibres of their roots having been taken off with a ſharp knife, they ſtrain a line along one ſide of the bed; and, by chopping with a ſpade by the ſide of the line, leave a cleft or drill, of a depth proportioned to the length of the plants to be laid in; and, drawing the looſe mould ſomewhat towards them, leave the ſide of the drill next to the line with a ſmooth poliſhed face. Againſt this face the plants are ſet up, leaning towards the line, about three inches aſunder, leaving their heads about an inch above the mould, and placing their roots at ſuch a depth as to bury their ſtems from two to three inches deeper than they ſtood in the ſeed-bed. The looſe mould being returned and preſſed gently to the roots with the foot, the line is removed, and another row planted in the ſame manner, about a foot from the firſt.

The Common Hawthorn ſports in the following *Varieties*:

The Large Scarlet Hawthorn.

The Yellow Hawthorn.

The White Hawthorn.

The Maple-leaved Hawthorn.
The Double-bloſſomed Hawthorn.
The Glaſtonbury Thorn.

The Large Scarlet Hawthorn is no more than a beautiful variety of the Common Haw. It is exceedingly large, oblong, perfectly ſmooth, and of a bright ſcarlet; and, from the additional ſplendor it acquires by the berries, it is propagated to cauſe variety in plantations for obſervation and pleaſure.

Yellow Haw is a moſt exquiſite plant. The buds, at their firſt coming out in the ſpring, are of a fine yellow, and the fruit is of the colour of gold. The tree is a great bearer, and retains its fruit all winter, cauſing a delightful effect in plantations of any kind. It was originally brought from Virginia, is greatly admired, and no collection of hardy trees ſhould be without it.

White Haw is but a paltry tree, compared with the former. It hardly ever grows to the height of the Common Hawthorn, is an indifferent bearer, and the fruit is ſmall, and a very bad white.

Maple-leaved Hawthorn will grow to be near twenty feet high, and has very few thorns. The leaves are larger than the Common Hawthorn, reſemble thoſe of the Maple, and are of a whitiſh-green colour. The flowers are produced in large bunches, in June, and are ſucceeded by remarkable fruit, of a ſhining red, which looks beautiful in the winter.

Double-bloſſomed Hawthorn produces a full flower, and is one of the ſweeteſt ornaments in the ſpring. Nature ſeems to have peculiarly deſigned this ſort for the pleaſure-garden; for though it be the Common Hawthorn only, with the flowers doubled, yet it may be kept down to what ſize the owner pleaſes; ſo that it is not only ſuitable for wilderneſs-quarters, ſhrubberies, and the like, but is alſo uſeful for ſmall gardens, where a tree or two only are admitted. Theſe beautiful double flowers come out in large bunches in May, and the tree is ſo good a bearer, that it will often appear covered with them. Their colour, at their firſt appearance, is a delicate white: They afterwards die to a faint red colour, and are frequently ſucceeded by ſmall imperfect fruit.

Glaſtonbury Thorn differs in no reſpect from the Common Hawthorn, only that it ſometimes flowers in the winter. It is ſaid to have originally been the ſtaff of Joſeph of Arimathea,

that

that noble counſellor who buried Chriſt. He, according to the tradition of the abbey of Glaſtonbury, attended by eleven companions, came over into Britain, and founded, in honour of the Bleſſed Virgin, the firſt Chriſtian Church in this iſle. As a proof of his miſſion, he is ſaid to have ſtuck his ſtaff into the ground, which immediately ſhot forth and bloomed. This tree is ſaid to have bloſſomed on Chriſtmas-Day ever ſince, and is univerſally diſtinguiſhed by the name of the Glaſtonbury Thorn. HANBURY ſays, I have many plants that were originally propagated from this thorn; and they often flower in the winter, but there is no exact time of their flowering; for in fine ſeaſons they will ſometimes be in blow before Chriſtmas, ſometimes they afford their bloſſoms in February, and ſometimes it ſo happens that they will be out on Chriſtmas-Day.

2. L'AZAROLE. The Azarole Thorn will grow to be fifteen or ſixteen feet high. The leaves are large, nearly trifid, ſerrated and obtuſe. The flowers are large, come out in May, and, in the different varieties, are ſucceeded by fruit of different ſize, ſhape, and reliſh.

The principal *varieties* of this ſpecies are, The *Azarole with ſtrong thorns*; the *Azarole with no thorns*; the *Jagged-leaved Azarole*; the *Oriental Medlar*.

3. The WHITE LEAF. The *Aria Theophraſti*, called the White-leaf-tree, will grow to be more than twenty feet high. This tree is engaging at all times of the year, and catches the attention, even in the winter; for then we ſee it ſtand, though naked of leaves, with a fine ſtrait ſtem, with ſmooth branches, ſpotted with white, at the end of which are the buds, ſwelled for the next year's ſhoot, giving the tree a bold and fine appearance. In the ſpring the leaves come out of courſe, and look delightfully, having their upper ſurface green, and the lower white. Their figure is oval; they are unequally ſerrated, about three inches long, and half as wide. Several ſtrong nerves run from the mid-rib to the border, and they are placed alternately on the branches, which appear as if powdered with the fineſt meal. The flowers are produced at the end of the branches, in May; they are white, grow in large bunches, having mealy footſtalks, and are ſucceeded by red berries, which will be ripe in autumn.

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4. The WILD SERVICE. The Maple-leaved Service is a large-growing tree. It will arrive to near fifty feet, and is worth propagating for the ſake of the timber, which is very white and hard. This tree grows naturally in ſeveral woods in England; and it is the fruit of this ſpecies that is tied in bunches, and expoſed for ſale in the autumn: It is gathered in the woods, and by ſome perſons is much liked. The leaves in ſome degree reſemble thoſe of the Maple-tree in ſhape; their upper ſurface is a fine green, their under hoary; and they grow alternately on the branches. The flowers come out in May, exhibiting themſelves in large cluſters at the ends of the branches: They are white, and are ſucceeded by the aforeſaid eatable fruit, which, when ripe, is of a brown colour, and about the ſize of a large haw.

5. VIRGINIAN AZAROLE. This ſpecies will grow to be near twenty feet high. The ſtem is robuſt, and covered with a light-coloured bark. The branches are produced without order, are of a dark brown colour, and poſſeſſed of a few long ſharp thorns. The leaves are ſpear-ſhaped, oval, ſmooth, and ſerrated; of a thickiſh conſiſtence, and often remain on the tree the greateſt part of the winter. Each ſeparate flower is large; but as few of them grow together, the umbels they form are rather ſmall. They come out in May, and are ſucceeded by large dark-red-coloured fruit, which ripens late in the autumn.

The *varieties* of this ſpecies are, The *Pear-leaved Thorn*; the *Plum-leaved Thorn with very long ſtrong ſpines and large fruit*; the *Plum-leaved Thorn with ſhort ſpines and ſmall fruit*.

6. COCKSPUR HAWTHORN. The Virginian Cockſpur Thorn will grow to about twenty feet high. It riſes with an upright ſtem, irregularly ſending forth branches, which are ſmooth, and of a browniſh colour, ſpotted thinly with ſmall white ſpots. It is armed with thorns, that reſemble the ſpurs of cocks, which gained it the appellation of Cockſpur Thorn. In winter, the leaf-buds appear large, turgid, and have a bold and pleaſant look among others of different appearances. In ſummer, this tree is very delightful. The leaves are oval, angular, ſerrated, ſmooth, and bend backwards. They are about four inches long, and three and a half broad; have five or ſix pair of ſtrong

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nerves running from the midrib to the border; and die to a browniſh-red colour in the autumn. The flowers are produced in very large umbels, making a noble ſhow, in May; and are ſucceeded by large fruit, of a bright red colour, which have a good effect in the winter.

The principal *varieties* of this ſpecies are, The *Cockſpur Hawthorn with many thorns*; the *Cockſpur Hawthorn with no thorn*; the *Cockſpur with eatable fruit*. The latter was ſent me, ſays HANBURY, from America with that name, and I have raiſed ſome trees of the ſeed; but they have not yet produced any fruit, ſo that I cannot pretend to ſay how far it may be deſirable; though I have been informed it is reliſhed in America by ſome of the inhabitants there.

7. GOOSEBERRY-LEAVED VIRGINIA HAWTHORN. This ſpecies grows to about ſeven or eight feet high. The branches are ſlender, and cloſely ſet with ſharp thorns. The leaves are cuneiform, oval, ſerrated, and hairy underneath. The flowers are ſmall, and of a white colour: They are produced from the ſides of the branches, about the end of May; and are ſucceeded by yellow fruit, which ripens late in autumn.

There is a *variety* of this, called the *Carolina Hawthorn*, which has longer and whiter leaves, larger flowers and fruit, and no thorns.

8. GREEN-LEAVED VIRGINIA HAWTHORN. The ſtem and branches of this ſpecies are altogether deſtitute of thorns. The leaves are lanceolate, oval, nearly trilobate, ſerrated, ſmooth, and green on both ſides. The flowers are white, moderately large, come out the end of May, and are ſucceeded by a roundiſh fruit, which will be ripe late in the autumn.

The reſpective ſpecies are all PROPAGATED by ſowing of the ſeeds; and the varieties are continued by budding them upon ſtocks of the White Thorn. This latter method is generally practiſed for all the ſorts; though, when good ſeeds can be procured, the largeſt and moſt beautiful plants are raiſed that way. 1. In order to raiſe them from ſeeds, let theſe be ſown ſoon after they are ripe, in beds of freſh, light, rich earth. Let alleys be left between the beds, for the conveniency of weeding, and let the ſeeds be covered over with fine mould, about an inch deep.

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The ſummer following, the beds muſt be kept clean of weeds, and probably ſome few plants will appear: But this is not common in any of the ſorts; for they generally lie till the ſecond ſpring after ſowing before they come up. At the time they make their appearance they muſt be watered, if the weather proves dry; and this ſhould be occaſionally repeated all ſummer. They ſhould alſo be conſtantly kept clean from weeds; and in the autumn the ſtrongeſt may be drawn out, and ſet in the nurſery-ground, a foot aſunder, in rows that are two feet diſtant from each other; while the weakeſt may remain until another year. During the time they are in the nurſery, the ground between the rows ſhould be dug every winter, and the weeds conſtantly hoed down in the ſummer; and this is all the trouble they will require until they are planted out for good, which may be in two, three, or more years, at the pleaſure of the owner, or according to the purpoſes for which they are wanted. 2. Theſe trees are eaſily propagated by budding alſo; they will all readily take on one another; but the uſual ſtocks are thoſe of the Common Hawthorn. In order to have theſe the beſt for the purpoſe, the haws ſhould be got from the largeſt trees, ſuch as have the feweſt thorns and largeſt leaves. After they are come up, and have ſtood one year in the ſeed-bed, the ſtrongeſt ſhould be planted out in the nurſery, a foot aſunder, and two feet diſtant in the rows; and the ſecond ſummer after, many of them will be fit for working. The end of July is the beſt time for this buſineſs; and cloudy weather, night and morning, are always preferable to the heat of the day. Having worked all the different ſorts into theſe ſtocks, they may be let alone until the latter end of September, when the baſs matting ſhould be taken off. In the winter the ground between the rows ſhould be dug, and in the ſpring the ſtock ſhould be headed about half a foot above the bud. The young ſhoots the ſtocks will always attempt to put out, ſhould be as conſtantly rubbed off; for theſe would in proportion ſtarve the bud, and ſtop its progreſs. With this care, ſeveral of the ſorts have been known to ſhoot ſix feet by the autumn; and as they will be liable to be blown out of their ſockets by the high winds which often happen in the ſummer, they ſhould be ſlightly tied to the top of the ſtock that is left on for the purpoſe, and this will help to preſerve them.

CUPRESSUS.

LINNEAN Claſs and Order, *Monoecia Monadelphhia:* Male flowers containing four ſtamens connected at the baſe, and female flowers containing many piſtils; the males being diſpoſed in oval catkins; and the females, collected in roundiſh cones upon the ſame plant. There are five SPECIES (one of them lately diſcovered in Japan):

1. CUPRESSUS *Sempervirens:* The COMMON CYPRESS; *a deciduous tree*; native of Italy, Spain, Portugal and Crete.

2. CUPRESSUS *Thyoides:* The AMERICAN CYPRESS; or the ARBOR-VITÆ-LIKE CYPRESS, or the SMALL BLUE-BERRIED CYPRESS; *an evergreen tree or ſhrub*; native of Maryland and Canada.

3. CUPRESSUS *Juniperoides:* The AFRICAN CYPRESS, or the JUNIPER-LIKE CYPRESS, or the CAPE CYPRESS; *a deciduous tree or ſhrub*; native of the Cape of Good Hope.

4. CUPRESSUS *Diſticha:* The DECIDUOUS CYPRESS; *a deciduous tree*; native of North America.

1. The COMMON CYPRESS. There are two ſtriking *varieties* of this plant (MILLAR makes them two diſtinct SPECIES); namely,

The Upright or Female Cypreſs, and

The Spreading or Male Cypreſs.

There is alſo a third *variety* (which the ſame profeſſional writer conſiders likewiſe as a diſtinct ſpecies); namely,

The Small-fruited Cypreſs.

The *Upright Cypreſs* is a moſt elegant plant, and, notwithſtanding it has of late years been ſomewhat unfaſhionable, it certainly merits a place amongſt *ornamental* evergreens. Its conical, or rather ſomewhat obeliſcal, form makes an agreeable variety with fuller-headed plants. It aſpires to a conſiderable height, though we believe it ſeldom ſwells to a large girt. However, EVELYN and HANBURY ſpeak of this kind of Cypreſs

as a timber-tree; but both of them ſeem to give preference to

The *Spreading Cypreſs*. This grows with a fuller and leſs regular head than the upright ſort. MILLAR tells us, that in the Levant this is the common timber; and recommends the planting of it in England very ſtrongly; eſpecially upon hot, ſandy, or gravelly ſoils.

The *Small-fruited Cypreſs* is ſtill more ſpreading than the other, and produces its boughs in an irregular manner. If it is not crowded by other trees, and is left to nature, it will be feathered from the top to the bottom. It will grow to about the height of the Common Cypreſs, and is a ſort that looks well if planted ſingly on graſs-plats, &c. as well as when aſſiſting to form clumps, or larger quarters of evergreens.

2. AMERICAN CYPRESS. This is the loweſt grower of all the ſorts with us; though in America, where it grows naturally, it arrives to timber, which ſerves for many excellent purpoſes. The talleſt of theſe trees ſeldom riſe much higher than fifteen feet; and as this tree is encreaſed by cuttings, thoſe plants raiſed this way ſeldom riſe higher than about nine or ten feet. The branches ſtand two ways, and are pretty numerous; and the tree naturally forms itſelf into a regular head. The leaves of this ſort are imbricated, like the *Arbor Vitæ*, though ſmall, and are of a browner kind of green than the Common Cypreſs. The fruit is very ſmall, and of a blue colour, and will be produced in great plenty all over the plant. They are of the ſize of the juniper-berry, and much reſemble it; though they are cones, and like the other ſpecies of this genus, but much ſmaller. When theſe plants are raiſed from ſeeds, they will aſpire to a greater height, eſpecially if planted in a moiſt ſoil; but thoſe raiſed by cuttings generally have the appearance of ſhrubs. They are all, however, very beautiful, and greatly embelliſh thoſe parts of the evergreen plantations where they are ſtationed.

3. AFRICAN CYPRESS. The branches of this ſpecies are numerous, ſlender, and ſpread themſelves all around. The leaves are narrow, awl-ſhaped, about an inch long, of a light-green colour, and grow oppoſite to each other on the branches. The flowers come out from the ſides of the branches, like the

Common

Common Cypreſs, and they are ſucceeded by black fruit; but the ſeeds never ripen in England.

The method of PROPAGATING the Common Cypreſs is from ſeeds ſown in a warm border, or well-ſheltered beds, of light ſandy loam, near half an inch deep, in the month of March; and by the beginning of May the plants will be up. After they have come up, if the ſummer ſhould not prove very dry, they will require little watering; and even in the greateſt drought twice a week will be ſufficient for them, provided it be done in the evenings. This is the only care they will require the firſt ſummer, except being kept clean from weeds. In the winter, if the place where they are ſown be tolerably well ſheltered, they will ſtand it very well, though it ſhould prove ſevere; but where the ſituation is not well ſheltered by plantations to break the violence of the froſty black winds, they muſt be ſcreened, otherwiſe many will be loſt. It is the black froſts, attended by high winds, which will deſtroy theſe plants; ſo that where there is not ſhelter enough to break their edge, the beds ſhould be hooped over, and covered with mats during that ſevere weather. The enſuing ſummer the plants may remain undiſturbed, when they will require no watering, and no farther care except weeding. The ſpring following, being then two years old, they ſhould be ſet out in the nurſery, exactly at two feet ſquare. In taking them out of the ſeed-bed, ſome earth ſhould be taken with the roots. The latter end of March is the moſt proper time for this work; and if the weather ſhould prove dry and cold, as it often happens, the March winds blowing, the work muſt be deferred till rainy or cloudy weather; for without theſe precautions, you will find this a difficult plant to remove. After they are planted out in the nurſery, they may be now and then watered in dry weather, kept clean from weeds, and thus may ſtand till they are of a ſufficient ſize to be planted out. They will grow in almoſt any *ſoil*; but above all affect ſandy gravelly ground.

With regard to the African and the American Cypreſs, the *ſeeds* ſhould be ſown in pots or boxes. We receive them from abroad: They are very ſmall, and ſeldom come up before the ſecond ſpring; ſo that there will be leſs danger of their being loſt if they are ſown in pots or boxes, which may be ſet in the ſhade in ſummer, and removed into well-ſheltered places during the winter.

winter. In the ſpring the plants will come up; and after that the Blue-berried Cypreſs may have the ſame treatment as the young ſeedlings of the Common ſort. With reſpect to the Cape Cypreſs, the plants muſt be ſet in pots, to be houſed in winter, until they are grown to be a yard high. When they are turned out into the open air, they ſhould have a dry, warm ſoil, and a well-ſheltered place, and even theſe will not enſure their ſafety; ſo that whoever is deſirous of having theſe trees in his plantations, ſhould have ſome wooden ſconces made, to cover them in froſty weather; and if this is obſerved until they are grown of a tolerable ſize, there is no doubt but they will live, in a warm well-ſheltered place, through our common winters.

4. The DECIDUOUS CYPRESS will grow to be near ſixty feet high, if ſtationed in a place ſuitable to its nature. It is very hardy in reſpect to cold; and a ſhare of the moiſteſt part of the plantation muſt be allotted it. In Virginia and ſeveral parts of America, where this tree is a native, it is a real aquatic; being found growing to a very large ſize in places wholly covered with water; and with us, if planted in watery places, by the edges of rivers, ponds, ſprings, &c. it will be more luxuriant, and will proportionally riſe to a greater height and bulk than if planted in a dry ſoil. This tree in the ſummer has a little the reſemblance of an evergreen, and the leaves have a pleaſing effect, appearing in ſome reſpect like ſome ſorts of the Acacias; and theſe are the chief inducements for its admiſſion into the pleaſure-ground.

This ſpecies may be PROPAGATED from *ſeeds* in the ſame manner as the Common Cypreſs; alſo from *cuttings* planted in October in a moiſt ſandy ſoil. Many of them will grow; though a general crop can ſeldom be obtained; and they ſhould be kept clean of weeds the ſummer following, as well as the ſummer after that. In the autumn, or any part of the winter, they ſhould be planted out in the nurſery; and, if they are to ſtand there a conſiderable time, they ſhould be allowed a good diſtance; for they will grow, with proper care, when removed at a large ſize. If any part of the nurſery-ground is moiſter than the other, they muſt have a ſhare of it. The ground ſhould be conſtantly dug between the rows every winter, the weeds hoed down in ſummer, and, when planted out, theſe

trees ſhould have moiſt places, in conſequence of what has been before obſerved.

CYNANCHUM.

LINNEAN Claſs and Order, *Pentandria Digynia*: Each flower contains five males and two females: There are fourteen SPECIES; moſt of them climbing: Three are ſufficiently hardy for this climate.

1. *Cynanchum Acutum*: The ACUTE-LEAVED CYNANCHUM, or the ACUTE-LEAVED MONTPELIER SCAMMONY; *an herbaceous climber*; native of the South of Europe.

2. *Cynanchum Monſpeliacum*: The ROUND-LEAVED CYNANCHUM, or ROUND-LEAVED MONTPELIER SCAMMONY; *an herbaceous climber*; native of Spain and the South of France.

3. *Cynanchum Suberoſum*: The CAROLINA CYNANCHUM, or the CAROLINA PERIPLOCA; *a ligneous climber*; native of Carolina and other parts of America.

1. The ACUTE-LEAVED CYNANCHUM. The root is ſtrong, creeping, and ſpreads itſelf to a conſiderable diſtance. The ſtalks are herbaceous, twiſt about every thing that is near them, will grow to be ſix feet long, but always die to the ground in the autumn, and freſh ones are put forth from the roots in the ſpring. The leaves are oblong, heart-ſhaped, acute-pointed, ſmooth, and grow oppoſite by pairs on long footſtalks. The flowers come out from the wings of the leaves in ſmall bunches; they are of a dirty white colour, appear in June and July, but are not ſucceeded by good ſeeds in our gardens. This plant, on being wounded, emits a milky juice.

2. ROUND-LEAVED CYNANCHUM. The root of this ſpecies is large, thin, juicy, and ſpreads itſelf to a conſiderable diſtance. The ſtalks are herbaceous, and twine to ſix or ſeven feet high about whatever is near them. The leaves are broad, reniform, roundiſh, and grow oppoſite, on long footſtalks. The flowers come out from the wings of the leaves, in ſmall bunches; they are of a bad white colour, appear in June and July, and are rarely

rarely ſucceeded by good ſeeds in our gardens. The ſtalks die to the ground in the autumn, and freſh ones ariſe again in the ſpring. On wounding any part of this plant, a milky juice immediately flows.

3. Carolina Cynanchum. The ſtalks of this ſpecies are ſlender, ligneous, ſhrubby, and will twiſt about any thing to the height of about ſeven feet. They are hairy, and their lower part is covered with a thick, fungous, cloven, cork-like bark. The leaves are oval, heart-ſhaped, pointed, and grow oppoſite at the joints on long hairy footſtalks. The flowers come out from the wings of the leaves in ſmall bunches. They are greeniſh on their firſt appearance, but die away to a bad purple. They exhibit themſelves in July and Auguſt; but are not ſucceeded by good ſeeds in our gardens.

This ſort is propagated by laying down the young ſhoots as they advance in the ſummer, and covering them over with ſome fine mould. Theſe will ſoon put out roots, by the autumn will be good plants, and may then be removed to the places where they are deſigned to remain. This ſpecies is rather tender; and the ſoil in which it is planted ſhould be naturally dry, warm, light, and ſandy, and the ſituation well defended. Being thus ſtationed, it will live abroad, and continue for many years; but if the ſoil is moiſt, rich, and ill-defended, the chance will be very great but it will be deſtroyed the firſt winter.

The two firſt ſorts are exceedingly hardy, will grow in any ſoil or ſituation, and will over-run any ſmall plants that are near them. Their ſituation, therefore, ſhould be among ſuch trees as have ſtrength enough to admit their embraces; and their propagation is by cutting the roots in the autumn. Every cut will grow; and, when planted, will call for no trouble except keeping them clear from weeds, when they firſt ſhoot up in the ſpring.

C Y T I S U S.

Linnean Claſs and Order, *Diadelphia Decandria*: Each flower contains ten males and one female; the males riſing in

two diviſions: There are fourteen SPECIES; five of which afford conſiderable ornament to the Engliſh garden.

1. *Cytiſus Seſſilifolius:* The SESSILE-LEAVED CYTISUS (or TREFOIL TREE, or BASE TREE TREFOIL), or CYTISUS SECUNDUS CLUSII, or the SMOOTH ROUND-LEAVED CYTISUS; *a deciduous ſhrub*; native of France, Italy, and Spain.

2. *Cytiſus Nigricans:* The BLACK CYTISUS; or the BLACKISH SMOOTH CYTISUS; *a deciduous ſhrub*; native of Auſtria, Bohemia, Italy and Spain.

3. *Cytiſus Auſtriacus*: The TARTARIAN CYTISUS; or the AUSTRIAN CYTISUS; *a low deciduous ſhrub*; native of Auſtria, Siberia and Italy.

4. *Cytiſus Laburnum:* The LABURNUM; *a deciduous tree*; native of Switzerland, Savoy, and moſt parts of Europe.

5. *Cytiſus Hirſutus:* The EVERGREEN CYTISUS; or the EVERGREEN CYTISUS OF NAPLES; or the ITALIAN CYTISUS WITH HAIRY LEAVES; *an evergreen ſhrub*; native of Italy, Spain, Auſtria and Siberia.

1. The SESSILE-LEAVED CYTISUS will grow to the height of about five or ſix feet. The branches are numerous, erect, very brittle, and covered over with a ſmooth brown bark. The leaves are ſmall, and of a fine green: They are nearly of an oval figure, and grow by threes on the twigs; on ſome branches they ſit quite cloſe, on others they grow on very ſhort footſtalks. The flowers grow at the ends of the branches, in ſhort ſpikes: They are of a fine yellow, come out the beginning of June, and when in full blow the ſhrub will appear almoſt covered with them. The ſeeds uſually ripen in Auguſt.

2. BLACK CYTISUS will arrive to about the height of the former, and naturally divides into many branches. The bark is brown, and the young ſhoots are of a greeniſh-red. The leaves reſemble Trefoil: They are ſmooth, and grow three together on browniſh footſtalks; the folioles are of an oblong oval figure, and their upper ſurface is of a dark-green, but they are paler underneath. The flowers are produced in long, erect, cloſe ſpikes, at the ends of the branches: They are of a beautiful yellow colour, come out in July, and when in full blow make a fine appearance. The ſeeds ripen in the autumn.

3. Tartarian Cytisus. The ſtalks are ſhrubby, branching, green, and grow to three or four feet high. The leaves are oval, oblong, ſmooth, and of a whitiſh-green colour. The flowers come out in cloſe heads from the ends of the branches, in May: They are of a light-yellow colour, and have a cluſter of leaves under them; they are ſometimes ſucceeded by ſhort woolly pods, containing the ſeeds.

There is a *variety* of this ſpecies, with naked ſtalks, ſmaller leaves and flowers, rather earlier in the ſpring, uſually called the *Siberian Cytiſus*.

4. The Laburnum is a large-growing tree: It will aſpire to the height of near forty feet, and is one of the moſt noble trees our gardens afford. It will form itſelf into a fine head; its branches are ſmooth, of a pale-green colour, and poſſeſſed of a few greyiſh ſpots. The leaves ſtand by threes on long ſlender footſtalks: Each of theſe is oblong and entire; their upper ſurface is ſmooth, and of a ſhining green, but their under ſurface is more inclined to be downy. The time of this tree's flowering is May; and the effect can hardly be conceived which it will have, when it appears covered with its long pendulent bunches of flowers, of a delightful yellow. Each flower that helps to compoſe one ſet is tolerably large of itſelf, and the common ſtalk to which they adhere by their own ſeparate footſtalks is often a foot or more in length; ſo that the appearance muſt be moſt noble, when it exhibits theſe long ſeries of flowers hanging down from almoſt every part of the whole head: Hanbury continues, "But this is not all; the timber when felled is exceeding valuable. It will arrive in bulk in proportion to its height; and the timber is both heavy and hard, and of a fine colour, inclined to yellow. The very branches of this tree are ſo ponderous as to ſink in water. It poliſhes extremely well, and is ſo much like to green ebony, that it is called by the French, *Ebony of the Alps*, where the tree grows naturally. And as the timber is ſo valuable for many ſorts of rich furniture, this ſhould arouſe the timber-planter's attention; for it will grow to be a timber-tree of more than a yard in girt, in almoſt any poor and ſorry ſoil, where other trees will hardly grow, let the ſituation be what it will: And how enchantingly ornamental muſt large quarters or clumps of theſe trees appear,

either by the borders of other woods, or in parks, and at the ſame time the expectation of the timber-crop retained!"

There are ſome other ſorts of LABURNUMS, of equal or more beauty than the preceding: One is called the *Scotch Laburnum*, another the *Italian*. The leaves of theſe are larger, and the bunches of flowers longer; and the individual flowers of which the bunches are compoſed proportionally larger. There is alſo another ſort, with ſmaller leaves, and bunches longer than the common, which difference it always preſerves from ſeeds; and theſe being planted among the common ſort, will afford the greater variety.

One method of PROPAGATION is common to all theſe ſorts: It is to be performed both by ſeeds and cuttings. 1. When by ſeeds, common garden-mould, when dug, and cleared of the roots of all weeds, will do for their reception. They ſhould be ſown in the ſpring, in beds neated up, about half an inch deep, and in about ſix weeks the young plants will appear. Nothing more will be neceſſary than keeping them clean from weeds during the ſummer, unleſs the weather proves very dry; if it does, a little watering ſometimes will be proper. The ſpring following, the *Laburnums* ſhould be planted out in the nurſery; but the other ſorts ſhould ſtand in the ſeed-bed two years, to gain ſtrength, before they are taken up. Theſe ſhould be planted a foot aſunder, and two feet diſtant in the rows; but the *Laburnums* ought to have a rather greater diſtance, eſpecially if they are deſigned to be trained up for ſtandards. 2. Another method of encreaſing theſe ſorts is by cuttings. October is the beſt month for the work; and the cuttings may be planted either a foot aſunder, and two feet diſtant in the rows, ſo that they need not be removed till they are taken up for good; or they may be ſet very thick, and thoſe which live taken up the winter following, and planted out in the nurſery-way, at diſtances wide in proportion to the time they are to ſtand.

5. The EVERGREEN CYTISUS. This ſhrub is naturally of an upright growth, and its common height is about ſix or ſeven feet. It may be trained up to a ſingle ſtem, for two, three, or four feet high, and will naturally ſend out many branches, which will form themſelves into a fine head. The bark on the

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ſtem is of a grey colour; the branches alſo are grey with a green caſt at a diſtance; and many of them will have the appearance of being channelled, the bottom of the grooves being of a duſky green, but their upper edges white. The younger ſhoots are green and ſtreaked, and their ſurface is hairy. The leaves alſo have this property, and ſtand three upon a ſhort foot-ſtalk. They are nearly of an oval figure, and have a ſtrong mid-rib running the whole length. They are of a fine green colour, and clothe the ſhrub with great beauty. The flowers are of a clear yellow colour, and are ſhaped like thoſe of the other ſorts: They appear in June, and are produced from the ſides of the branches, all over the ſhrub, in ſhort bunches; ſo that its golden head at that time is both beautiful and ſtriking. Neither is June the only time of its flowering; for it will often flower again in October; and, if the winter continues open and mild, it will ſometimes ſhew its bloſſoms in November and December. The flowers that appeared in June, which is its regular time of blow, will be ſucceeded by ſmall hairy pods, in which the ſeeds are contained, and which ripen with us very well in the autumn.

This ſort ſhould be PROPAGATED by ſeeds, which ſhould be ſown in the ſpring, and managed as directed for the deciduous ſorts; only it may not be amiſs to obſerve, that it will be neceſſary to plant the ſeedlings in the nurſery when they have ſtood one year in the ſeed-bed. They ſhould be ſet about a foot aſunder, in rows at two feet diſtance; and here they may ſtand for about two years, when they ſhould be planted out.

DAPHNE.

LINNEAN Claſs and Order, *Octandria Monogynia*: Each flower contains eight males and one female: There are fifteen SPECIES; eight of which are proper for our collection.

1. *Daphne Mezereum*: The MEZEREON, or SPURGE-OLIVE; *a low deciduous ſhrub*; native of Germany; and has been diſcovered in this country in ſome woods near Andover, in Hampſhire.

2. *Daphne Gnidium:* The FLAX-LEAVED DAPHNE, or FLAX-LEAVED THYMELÆA; *a low deciduous ſhrub*; native of Italy, Spain, and about Montpelier.

3. *Daphne Cneorum:* The SPEAR-LEAVED DAPHNE,, or the CNEORUM; or the CLUSTER-FLOWERING SPEAR-LEAVED DAPHNE; *a very low deciduous ſhrub*; native of Switzerland, Hungary, the Alps and the Pyrenean Mountains.

4. *Daphne Tartonraira:* The OVAL-LEAVED DAPHNE, or the TARTON-RAIRE; or CLUSTER-FLOWERING OVAL-LEAVED DAPHNE; a *very low deciduous ſhrub*; native of France and Italy.

5. *Daphne Alpina:* The ALPINE DAPHNE; or the ALPINE CHAMELÆA; a *low deciduous ſhrub*; native of the Alps, Geneva, Italy and Auſtria.

6. *Daphne Thymelæa:* The MILKWORT-LEAVED DAPHNE, or the THYMELÆA; a *low deciduous ſhrub*; native of Spain and the South of France.

7. *Daphne Villoſa:* The HAIRY-LEAVED DAPHNE, or the SMALL HAIRY PORTUGAL DAPHNE; a *very low deciduous ſhrub*; native of Spain and Portugal.

8. *Daphne Laureola:* The SPURGE LAUREL, or the EVERGREEN DAPHNE; a *low evergreen ſhrub*; common in ſome parts of this kingdom, alſo in Switzerland and France.

1. The MEZEREON. Of this elegant plant there are four *Varieties:* 1. The *White.* 2. The *Pale-red.* 3. The *Crimſon.* and, 4. The *Purple-flowering.*—HANBURY is very laviſh of his praiſe of theſe ſhrubs; he ſays, "they have each every perfection to recommend them as flowering-ſhrubs. In the firſt place, they are of low growth, ſeldom ariſing to more than three or four feet in height, and therefore are proper even for the ſmalleſt gardens. In the next place, they will be in bloom when few trees, eſpecially of the ſhrubby tribe, preſent their honours. It will be in February, nay, ſometimes in January; then will the twigs be garniſhed with flowers, all around, from one end to the other. Each twig has the appearance of a ſpike of flowers of the moſt conſummate luſtre; and as the leaves are not yet out, whether you behold this tree near or at a diſtance, it has a moſt enchanting appearance. But this is not all; the ſenſe of ſmelling is peculiarly regaled by the flowers; their ſpicy ſweetneſs is diffuſed around, and the air is perfumed with their odours to a conſiderable diſtance. Many flowers, deemed ſweet, are not liked by all; but the agreeable inoffenſive ſweet-

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neſs of the *Mezereon* has ever delighted the ſenſe of ſmelling, whilſt the luſtre of its blow has feaſted the eye. Neither is this the only pleaſure the tree beſtows; for beſides the beauty of the leaves, which come out after the flowers are fallen, and which are of a pleaſant green colour and an oblong figure, it will be full of red berries in June, which will continue growing till the autumn. Of theſe berries the birds are very fond; ſo that whoever is delighted with thoſe ſongſters, ſhould have a quantity of them planted all over the outſides of his wilderneſs quarters."

PROPAGATION. This ſort ripens its ſeeds with us, and may at any time be eaſily obtained, if they are ſecured from birds. Previous therefore to ſowing, the healthieſt and moſt thriving trees of the White, the Pale, and the Deep-red ſorts ſhould be marked out; and as ſoon as the berries begin to alter from green, they muſt be covered with nets, to ſecure them from the birds, which would otherwiſe devour them all. The berries will be ripe in July; and due obſervance muſt be had to pick them up as they fall from the trees, and to keep the ſorts ſeparate. As ſoon as they are all fallen, or you have enough for your purpoſe, they may then be ſown. The beſt ſoil for theſe plants is a good fat black earth, ſuch as is found in kitchen-gardens that have been well manured and managed for many years. In ſuch ſoil as this they will not only come up better, but will grow to a greater height than in any other. No particular regard need be paid to the ſituation; for as this tree is a native of the northern parts of Europe, it will grow in a north border, and flouriſh there as well as in a ſouth; nay, if there be any difference, the north border is more eligible than the ſouth. The ground being made fine, and cleared of roots of all ſorts, the ſeeds ſhould be ſown, hardly half an inch deep. The mould being riddled over them that depth, let the beds be neated up, and they will want no other attention until the ſpring. Theſe ſeeds will ſometimes remain in the ground two years; but for the moſt part they come up the ſpring after ſowing; and the ſeedlings will require no other care during the ſummer than weeding, and gentle watering in dry weather. After they have been in the ſeed-bed one year, the ſtrongeſt may be drawn out, and planted in the nurſery, to make room for the others; though if they do not come up very cloſe, it would be as well to let them remain

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in the ſeed-bed until the ſecond autumn: when they ſhould be taken up with care, and planted in beds at a foot aſunder each way. This will be diſtance enough for theſe low-growing ſhrubs. October is the beſt month for planting them out finally; for although they will grow if removed any time between then and ſpring, yet that will certainly be a more proper ſeaſon than when they are in full blow. Such is the culture of this ſhrub. The other ſpecies of this genus require a different management.

2. FLAX-LEAVED DAPHNE ſeldom grows higher than three feet. The branches are very ſlender, and ornamented with narrow, ſpear-ſhaped, pointed leaves, much like thoſe of the Common Flax. The flowers are produced in panicles at the ends of the branches: They are ſmall, come out in June, but are rarely ſucceeded by ſeeds in England.

3. SPEAR-LEAVED DAPHNE, or CNEORUM. This riſes with a ſhrubby, branching ſtalk, to about a foot or a foot and a half high. The leaves are narrow, ſpear-ſhaped, and grow irregularly on the branches. The flowers are produced in cluſters at the ends of the little twigs: They make their appearance in March, are of a purple colour, and poſſeſſed of a fragrance little inferior to that of the *Mezereon*; but they are ſeldom ſucceeded by ſeeds in England.

4. OVAL-LEAVED DAPHNE, or TARTON-RAIRE. This riſes with a woody ſtalk to the height of about two feet. The branches are numerous, irregular, tough, and covered with a light-brown-coloured bark. The leaves are oval, very ſmall, ſoft to the touch, and ſhining. The flowers are produced in cluſters from the ſides of the ſtalks: They are white, come out in June, and are ſucceeded by roundiſh berries, which ſeldom ripen in England. This ſort ſhould have a dry ſoil and a warm ſituation.

5. The ALPINE DAPHNE, or CHAMELÆA, will grow to the height of about a yard. The leaves are ſpear-ſhaped, obtuſe, and hoary underneath. The flowers come out in cluſters from the ſides of the branches, and are very fragrant: They appear in March, and are ſucceeded by red berries, that ripen in September.

6. MILKWORT-LEAVED DAPHNE, or THYMELÆA, will grow to the height of a yard. The ſtalks of this ſpecies are upright, branched, and covered with a light-brown bark. The leaves are ſpear-ſhaped, ſmooth, and in ſome reſpect reſemble thoſe of Milkwort.

wort. The flowers are produced in cluſters from the ſides of the ſtalks: They are of a greeniſh colour, have no footſtalks, appear in March, and are ſucceeded by ſmall yellowiſh berries, which will be ripe in Auguſt. This ſort requires a dry ſoil and a warm ſituation.

7. HAIRY-LEAVED DAPHNE. The ſtalks are ligneous, about two feet high, and ſend forth branches alternately from the ſides. The leaves are ſpear-ſhaped, plane, hairy on both ſides, and grow on very ſhort footſtalks. The flowers have very narrow tubes, are ſmall, and make no great ſhow: They come out in June, and are not ſucceeded by ripe ſeeds in England. This ſhrub, in ſome ſituations, retains its leaves all winter in ſuch beauty as to cauſe it to be ranked among the low-growing evergreens; but as in others it is ſometimes ſhattered with the firſt black winds, it is left to the Gardener whether to place this ſhrub among the Deciduous Trees or Evergreens.

All theſe ſorts are with ſome difficulty PROPAGATED and retained. They will by no means bear removing, even when ſeedlings; and if ever this is attempted, not one in an hundred muſt be expected to grow. They are raiſed by ſeeds, which we receive from the places where they grow naturally; and he who is deſirous of having theſe plants, muſt manage them in the following manner: Let a compoſt be prepared of theſe equal diviſions; one-fourth part of lime-rubbiſh; one-fourth part of drift or ſea ſand; another of ſplinters of rocks, ſome broad and others ſmaller; and the other part of maiden earth, from a rich paſture. Let theſe be mixed all together, and filled into largiſh pots. In each of theſe pots put a ſeed or two, about half an inch deep, in the fineſt of the mould. We receive the ſeeds in the ſpring; ſo that there is little hopes of their coming up until the ſpring following: Let, therefore, the pots be ſet in the ſhade all the ſummer, and in the autumn removed into a warm ſituation, where they may enjoy every influence of the ſun's rays all winter. In March let them be plunged into a moderate hot-bed, and the plants will ſoon after appear. This bed will cauſe them to be ſtrong plants by the autumn; and when all danger of froſt is over, they may be uncovered wholly, and permitted to enjoy the open air. In the autumn, they ſhould be removed into the greenhouſe, or ſet under an hot-bed frame all winter; and in ſpring they ſhould be placed

where

where they are to continue, moulding them up the height of the pot; the pots being ſufficiently broken to make way for their roots, as they ſhoot, and then left to Nature.—The ſituation of the four tenderer ſorts muſt be well ſheltered, and if it be naturally rocky, ſandy, and dry, it will be the better; for in the places where they grow naturally, they ſtrike into the crevices of rocks, and flouriſh where there is hardly any appearance of ſoil.

This is one method of obtaining theſe ſhrubs. Another way is, by ſowing the ſeeds in the places where they are to remain. The ſituation and nature of the ſoil ſhould be as near that above deſcribed as poſſible; and the mould ſhould be made fine in ſome places, and a ſeed or two ſown in each. After this, pegs ſhould be ſtuck down on each ſide of them, to direct to the places where they are ſown. The exacteſt care muſt be obſerved, all ſummer, to pull up the weeds as often as they appear; for if they are permitted to get ſtrong, and have great roots, they will pull up the ſeeds with them. In the ſpring following, if the ſeeds are good, the plants will appear. During the ſummer, they ſhould be watered in dry weather; and, for the firſt winter or two, ſhould have ſome furze-buſhes pricked all round them, at a proper diſtance, which will break the keen edge of the froſty winds, and preſerve the young plants until they are ſtrong enough to defend themſelves.

The CNEORUM and the ALPINE CHAMELÆA are very hardy, and will grow in the coldeſt ſituation; but the other ſorts ſhould have a warm ſoil and a well-ſheltered ſite, or they will be ſubject to be deſtroyed in bad weather.

8. The SPURGE-LAUREL, or EVERGREEN DAPHNE, is a low ſhrub, ſeldom growing more than a yard or four feet high; it ſends out many branches from the bottom, and theſe are covered with a ſmooth light-brown bark, that is very thick. The bark on the younger branches is ſmooth and green; and theſe are very cloſely garniſhed with leaves of a delightful ſtrong lucid green colour. Theſe leaves ſit cloſe to the branches, and are produced in ſuch plenty, that they have the appearance, at a ſmall diſtance, of cluſters at the ends of the branches. They are ſpear-ſhaped, ſhining, ſmooth, and thick; their edges are entire. HANBURY extols this plant with a degree of enthuſiaſm; continuing, "and this is another excellent property of this tree, that it is thus poſſeſſed of ſuch delightful leaves for its ornament. Theſe

leaves,

leaves, when growing under the drip of trees, ſpread open, and exhibit their green pure and untarniſhed, in its natural colour: when planted ſingly in expoſed places, they naturally turn back with a kind of twiſt, and the natural green of the leaf is often alloyed with a browniſh tinge. This ſhrub is alſo valuable on account of its flowers; not becauſe they make any great ſhow, but from their fragrance, and the time they appear; for it will be in blow the beginning of January, and will continue ſo until the middle or latter end of April before the flowers fall off; during which time they never fail to diffuſe abroad their agreeable odours, which are refreſhing and inoffenſive. In the evenings eſpecially, they are more than commonly liberal; inſomuch that a few plants will often perfume the whole end of a garden; and when this happens early, before many flowers appear, the unſkilful in flowers, perceiving an uncommon fragrancy, are at once ſtruck with ſurprize, and immediately begin enquiring from whence it can proceed. Neither are its odours confined to a garden only; but, when planted near windows, they will enter parlours, and aſcend even into bed-chambers, to the great comfort of the poſſeſſor, and ſurprize of every freſh viſitor." Theſe flowers make but little ſhow; for they are ſmall, and of a greeniſh-yellow. They are produced amongſt the leaves from the ſides of the ſtalks, in ſmall cluſters, and will often be ſo hid by them, as to be unnoticed by any but the curious. They are ſucceeded by oval berries, which are firſt green, and afterwards black when ripe. Theſe berries will be in ſuch plenty as to be very ornamental; but will ſoon be eaten up by the birds; which is another good property of this tree, as it invites the different ſorts of whiſtling birds to flock where it is planted in great plenty.

This ſhrub is PROPAGATED by ſeeds, in the ſame manner as the Common *Mezereon*. The ſeeds muſt be preſerved from the birds by nets, until they are ripe. Soon after, they muſt be ſown as is directed for the *Mezereon*. They will often be two years before they come up; during which time, and afterwards, they may have the ſame management as has been laid down for the Common *Mezereon*, until they be finally ſet out.

This ſhrub will grow in almoſt any ſoil or ſituation, but flouriſhes moſt under the ſhade and drip of taller plants, giving a peculiar chearfulneſs to the bottoms of groves and clumps in winter.

DIOSPYROS.

LINNEAN Claſs and Order, *Polygamia Dioecia:* Some of the plants of this genus bear hermaphrodite and female flowers upon the ſame individual, whilſt others bear male flowers only; each of which contains eight ſtamina. There are five SPECIES; three of which are of late diſcovery: The other two are,

1. *Dioſpyros Lotus:* The INDIAN DATE-PLUM; *a low deciduous tree*; native of Africa and the South of Europe.

2. *Dioſpyros Virginiana:* The PISHAMIN-PLUM; *a tall deciduous ſhrub*; native of Virginia, Carolina, and many parts of North-America.

1. The INDIAN DATE-PLUM will arrive at the height of more than twenty feet, and is an excellent tree for ſhade. It aſpires with an upright ſtem, and the young branches are covered with a ſmooth whitiſh bark. The youngeſt twigs ſtand alternately on thoſe of the preceding year, and the buds for the next year's ſhoot begin to ſwell ſoon after the fall of the leaf. The leaves are of two colours; their upper ſurface is of a delightful green, and their lower of a whitiſh caſt. They are of an oblong figure, end in a point, and are in length about four inches and a half, and near two inches broad. They are placed alternately on the branches, and ſeveral ſtrong veins run alternately from the mid-rib to the borders, which are entire. Theſe leaves will be of a deep green, even when they fall off in the autumn. The flowers have little beauty to recommend them: they are pitcher-ſhaped, and grow ſingly on ſhort foot-ſtalks, on the ſides of the branches: they are of a reddiſh colour, and are ſucceeded by largiſh black berries, which are eatable, like the medlar, when in a ſtate of decay.

2. The PISHAMIN-PLUM will not aſpire to the height of the former ſpecies, though it will ſometimes grow to near twenty feet. The branches of this tree are whitiſh, ſmooth, and produced in an irregular manner. The leaves are very large and beautiful; about five or ſix inches long, and three broad. Their upper ſurface is ſmooth, and both ſides are of a beautiful green. They are of an oblong figure, end in a point, grow irregularly on the branches, and have ſeveral veins running from the mid-ribs to

the borders, which are entire. They fall off in the autumn, at the coming-on of the firſt froſts, when their colour will be that of a purpliſh red. The flowers, like thoſe of the other ſort, make no great appearance; but are ſucceeded by a fruit, which is eatable, when, like medlars, it is in a ſtate of decay.

Both theſe ſorts are PROPAGATED from the ſeeds, which we receive from abroad, in the ſpring. The compoſt proper for their reception is maiden earth, from a rich paſture, dug up ſward and all a year before, and three or four times turned in order to rot the ſward. This being made fine, a fourth part of drift or ſea ſand ſhould be added; and being all well mixed, the ſeeds ſhould be ſown in pots or boxes, three quarters of an inch deep. The pots ſhould afterwards be placed in a ſhady place during the ſummer; for the ſeeds rarely come up until the ſecond ſpring; and in the autumn they ſhould be removed into a well-ſheltered place, where they may enjoy the benefit of the ſun all winter. In the ſpring the plants will come up; and if they are aſſiſted by plunging the pots into a moderate hotbed, it will make them ſhoot ſtronger; though this is not abſolutely neceſſary. All the ſummer they ſhould ſtand in a ſhady place, where they may have free air; and, if the weather proves dry, they ſhould be watered every other evening. At the approach of winter, they ſhould be removed into the greenhouſe, or placed under an hotbed-frame, or ſome ſhelter; and, when all danger of froſt is over, they muſt be put in the ſame ſhady ſituation as in the former ſummer. In the winter alſo they ſhould be hooped as before; and in ſpring may be planted in the nurſery-ground. Theſe plants, when they get tolerably ſtrong, are very hardy; though even then the ends of the branches are ſubject to be killed; ſo that when they are ſeedlings, or very young, they will be in danger of being deſtroyed by the froſts, which makes the above-directed care and protection neceſſary till they have gained ſtrength.

ELÆAGNUS.

LINNEAN Claſs and Order *Tetrandria Monogynia:* Each flower contains four males and one female: There are four SPECIES; two of which have been introduced into this country; one of them requiring a ſtove heat; the other ſufficiently hardy to bear the open air; namely,

Elæagnus Anguſtifolia: The NARROW-LEAVED ELÆAGNUS, or the OLEASTER, or the WILD OLIVE; a *tall deciduous ſhrub*; native of Bohemia, Spain, Syria, and Cappadocia.

The NARROW-LEAVED ELÆAGNUS, or the OLEASTER, will grow to be near twenty feet high. Whilſt the leaves of moſt trees are poſſeſſed of a verdure, and occaſion variety by the difference of greens they exhibit, the leaves of the plant under conſideration are white, eſpecially the under-ſide, and ſtand upon white twigs. The branches are of a brown colour; but the preceding year's ſhoots are white and downy, the ſilvery leaves being placed irregularly upon them: Theſe are of a ſpear-ſhaped figure, about two, and ſometimes three inches long, and three quarters of an inch broad, and are as ſoft as ſattin to the touch. Neither is ſummer the only time the leaves afford us pleaſure: They continue on the tree great part of the winter; ſo that the effect they cauſe, when other trees are deſpoiled of their honours, may be eaſily conceived. The flowers appear in July, but make no figure: They are ſmall, and come out at the footſtalks of the leaves; their colour is white, and they are poſſeſſed of a ſtrong ſcent. The fruit that ſucceeds them much reſembles a ſmall olive.

This ſhrub has a *variety*, with yellow flowers.

The culture of both the ſorts is very eaſy. They are PROPAGATED by cuttings, which muſt be of the laſt ſummer's ſhoot. But in order to have them proper for the purpoſe, a ſufficient number of trees muſt be fixed on, from which the family is to be encreaſed. They muſt be headed near the ground in the winter; which will cauſe them to make ſtrong ſhoots the ſucceeding ſummer, and theſe ſhoots afford the cuttings. They ſhould be taken off in the autumn, and cut into lengths of about a foot each, three parts of which ſhould be ſet in the ground. They

may

may be planted very close, and in the autumn following removed into the nursery, where they should be set a foot asunder, and two feet distant in the rows; or, if there be ground enough, they may be planted thinner, and so will want no removing until they be finally set out. The best soil for these cuttings is a rich garden mould, inclined to be moist, and lying in a shady place; in such a soil and situation almost every cutting will grow. The tree itself is exceedingly hardy, and will afterwards shoot vigorously, in almost any soil or station.

EPHEDRA.

Linnean Class and Order, *Dioecia Monadelphia:* Male flower, containing seven stamens connected at the base, and female flowers containing two pistils, situated upon distinct plants. There are two Species; one of them of a hardy nature;—

Ephedra Distachya: The Ephedra, or Shrubby Horse Tail; *a sub-evergreen shrub*; native of rocky mountains, near the sea-coast of Italy, France, and Spain.

The Ephedra will grow to three, four, five, or six feet high, according to the nature of the soil in which it is placed; for if it be a fat moist soil, it will arrive to double the height it will attain in that of a contrary nature, and will be more tree-like; it will also have much larger leaves, and be more beautiful. The bark on the old stem is rough, and of a dark, dirty colour. These stems or branches are few; but they have joints at short intervals. Many of them are protuberant, and send forth younger shoots and leaves in prodigious plenty, so as to cause the shrub to have a close bushy look. The older branches will have bark that is smooth, and of a brown, reddish, or yellowish colour; whilst that on the younger shoots will be of a fine green. The larger branches are jointed and hollow, though they have sometimes in them a kind of reddish pith; those send forth smaller, which are called the leaves. These leaves are jointed, grow opposite by pairs, are alternately produced at every joint in opposite directions, and will thus branch out in a singular and horse-tail manner, in a suitable soil, to a great length. The leaves and shoots of this shrub being bruised in the winter, emit a very fœtid disagreeable

ſcent; but in the ſpring when the juices begin to flow, they are poſſeſſed of a different quality, emitting a fine odour, by many ſuppoſed or fancied to be like that of the pine-apple; and on account of this ſcent alone, in the ſpring, this tree is by many much coveted and admired. The flower-buds will appear in May oppoſite at the ſides of the joints; they grow by pairs, and by the middle of June will be in full blow, each ſtanding on very ſhort green foot-ſtalks. Male and female flowers will be found on different plants; they are ſmall, and of a yellow colour, and afford pleaſure only to the nice obſerver of the wonderful ſtructure of the minute parts of the vegetable world. This ſhrub ſhould always have a moiſt, fat ſoil; and in thoſe places it will appear more luxuriant and beautiful. It is very hardy, and, although it has been uſed to be preſerved in pots in greenhouſes, will bear the cold of our ſevereſt winters. In the winter the leaves, or rather the young ſhoots or joints, are of a dark, duſky green; but as the ſpring approaches, that goes off, and a fine, lively, chearful green poſſeſſes the whole plant. The old leaves fall off the latter end of April, or beginning of May; at which time the tree will ſend forth young ones, and will continue to do ſo until late in the autumn.

This ſhrub is very eaſily PROPAGATED; it will, indeed, propagate itſelf in great plenty, eſpecially if planted in a light, moiſt ſoil: So that where a quantity is wanted, ſome plants are to be procured for breeders; and theſe being planted in good light earth, will ſoon ſpread their roots, and produce plenty of *ſuckers*, which may be taken off, and planted in the nurſery-ground, to gain ſtrength, for a year or two; or they may be immediately, eſpecially the ſtrongeſt plants, finally ſet out. As theſe ſhrubs naturally ſpawn, and produce ſuckers in great plenty, after they are planted out in the ſhubbery-quarters, the ſpawn ſhould be every year taken off, and the ground dug about the roots; otherwiſe they will not only appear rambling and irregular, but they will diminiſh the beauty of the mother-plants, which will by no means appear to be luxuriant and healthy.

This plant merits a place amongſt evergreens, rather for the ſake of variety, or as a foil to more elegant ſpecies, than for any intrinſic beauty or elegance of its own. MILLAR ſays, it rarely flowers in gardens.

EUONYMUS.

LINNEAN Claſs and Order, *Pentandria Monogynia:* Each flower contains five males and one female: There are four SPECIES; three of which are cultivated in this country; one of them, however, requires a ſtove-heat: The other two are,

1. *Euonymus Europæus:* The COMMON or EUROPEAN EUONYMUS, or the SPINDLE TREE; *a deciduous ſhrub or tree*; native of ſome parts of England, and of Europe in general.

2. *Euonymus Americanus:*—The EVERGREEN or AMERICAN EUONYMUS; or the EVERGREEN SPINDLE;—*an evergreen ſhrub*; native of Virginia, Carolina, and other parts of North-America.

1. The COMMON EUONYMUS. There are of this ſpecies five *varieties:*

The Deep Red-berried Narrow-leaved Spindle Tree.
—— Pale Red-berried Spindle Tree.
—— White-berried Narrow-leaved Spindle Tree.
—— Broad-leaved Spindle Tree.
—— Variegated Spindle Tree *.

The *Narrow-leaved Spindle Tree* will grow to be ſixteen or eighteen feet high, will aſpire with an upright ſtem to a conſiderable height, naturally forming itſelf into a regular head. The bark of the ſtem is of a dark-brown; but that of the firſt and ſecond years ſhoots is ſmooth, and of a fine green, the White-berried ſort eſpecially, which differs from the Red-berried in this reſpect, as the ſhoots of that are browner. The leaves are ſpear-ſhaped, of a fine deep green colour, about three inches long, and an inch and a half broad, very ſlightly ſerrated, and placed nearly oppoſite on the branches. The flowers have little beauty to recommend them: They are ſmall, and of a greeniſh colour, produced in ſmall bunches from the ſides of the branches, the latter end of May, the bunches hanging on long footſtalks; and are ſucceeded by fruit, which conſtitutes the greateſt beauty of theſe plants.

* MILLAR makes the two laſt diſtinct *Species*; but HANBURY ſays, "I have raiſed thouſands of them for ſale (there being hardly any ſhrub more called for), and ever found the ſeeds of the Broad-leaved Spindle Tree to come up the Common Narrow-leaved ſort."

The ſeeds are of a delightful ſcarlet; four are contained in each veſſel; and theſe opening, expoſe them to view all over the head of the plant, ſome juſt peeping out of their cells, others quite out, and ſticking to the edge; and theſe veſſels being in bunches on long pendulent footſtalks, have a look which is ſingularly beautiful. The ſeed-veſſels of the firſt-mentioned ſort are of the ſame deep ſcarlet with the ſeeds; thoſe of the ſecond, of a paler red; thoſe of the third are white, which, together with the twigs of the latter being of a lighter green, conſtitute the only difference between theſe ſorts; for the ſeeds themſelves of all the ſorts are of a deep ſcarlet.

The *Broad-leaved Spindle Tree* is a *variety* of the Common Spindle Tree, though it will grow to a greater height than either of the other ſorts. It will arrive at near five-and-twenty feet high; and the branches are fewer, and the leaves broader. The young ſhoots are ſmooth, and of a purpliſh colour; and the buds at the ends of them, by the end of October, will begin to be ſwelled, and be near an inch long, preparing for the next year's ſhoot. The leaves are much larger than thoſe of the other ſorts, being, on a thriving plant, near five inches long and two broad. Their figure is like the other, though rather inclined to an oblong oval: Some are moſt ſlightly ſerrated, of a light-green, ſtand oppoſite by pairs, and fall off much ſooner in the autumn, before which their colour will be red. The flowers make an inconſiderable figure, though they are rather larger than the other ſorts: The ſeeds that ſucceed them with their veſſels alſo are proportionably larger; and many of the common footſtalks to each bunch will be four inches, which cauſes a more noble look in the autumn; though the others are equally pleaſing, as the flowers are produced on the Narrow-leaved ſorts in greater plenty: Add to this, the berries of the Broad will fall off long before the others.

The wood of the Common Spindle Tree is ſpoken of by MILLAR and HANBURY as being very valuable. The muſical-inſtrument-makers, ſay they, uſe it for keys of organs, and other purpoſes. Tooth-picks, ſkewers, and *ſpindles* of the beſt kind are alſo made from this wood; hence *Spindle Tree*.

There is but one good method of PROPAGATING the Common Spindle Tree, and that is by ſeeds; though it may eaſily be done by layers or cuttings; for if the young ſhoots be laid in the ground

in

in the autumn, they will have ſtruck root by the autumn following; and if cuttings are planted in the autumn in a moiſt rich earth, that is ſhaded, many of them will grow; but neither of theſe methods will produce ſuch fine upright plants, or that will grow to ſuch a height as thoſe raiſed from ſeeds, though they will be every whit as proliſic of flowers and fruit. Whoever has not the convenience of procuring the ſeeds, let him improve theſe hints, if he has got a plant or two, which will be ſufficient for his purpoſe: Whoever can get the ſeeds, had better never attempt thoſe arts. The ſeeds ſhould be ſown in the autumn, ſoon after they are ripe. They will thrive in almoſt any ſoil or ſituation, if it be made fine, and clear of the roots of all weeds, &c. though if it be a fine garden-mould, it will be the better. They ſhould be ſown three-fourths of an inch deep. It ſeldom happens that more than a few odd plants come up the firſt ſpring; the beds muſt, therefore, remain untouched until the ſpring twelvemonth after ſowing; only conſtant weeding muſt be obſerved. At that time the plants will come up very thick, and all the ſummer they muſt be weeded. In this ſeed-bed they may ſtand two years, and be then planted out in the nurſery, where they may remain, with no other care than weeding and digging between the rows in winter, until they are finally planted out.

The Broad-leaved ſort will take very well by budding it on the Common. The ſtocks for this purpoſe ſhould be planted out when they are one year's ſeedlings, and by the ſummer twelvemonth after they will be fit for working; ſo that whoever has young plants of the Common ſort, and only one of the other, may encreaſe his number this way.

2. The EVERGREEN EUONYMUS. Beſides the genuine ſpecies, there is a *variety* of the *Americanus*, having its leaves beautifully ſtriped with yellow. Theſe ſorts grow to the height of about ſeven feet. The branches are ſlender, covered with a ſmooth green bark, and grow oppoſite by pairs at the joints. The leaves alſo grow oppoſite, are ſpear-ſhaped, and have a ſtrong mid-rib running their whole length. The upper ſurface is of a fine ſtrong green colour, but their under is paler. They are ſmooth, are lightly indented, acutely pointed, and juſtly entitle this ſhrub to be called a fine evergreen. The flowers are produced in July, from the ſides and ends of the branches, in ſmall bunches.

They make no great ſhow; but they will be ſucceeded by rough, warted, red, five-cornered capſules, containing the ſeeds.

This ſpecies is to be PROPAGATED in the ſame manner as the other ſorts. 1. The beſt way is from ſeeds, which we receive from Virginia. Theſe will be two, and ſometimes three years before they appear; ſo that a perſon ſhould not be too haſty in diſturbing the beds; and after this precaution, what has been already ſaid relating to the management of raiſing the common ſorts of Spindle Trees from ſeeds, muſt conſtantly be obſerved in this ſpecies. 2. By layers alſo, and cuttings, it may be encreaſed; but when the latter way is to be practiſed, it will be proper to plant each cutting ſeparately in a ſmall pot, and plunge them into a bark-bed, otherwiſe it is very ſeldom that they will grow. After they have taken root, the pots may be ſet in the natural mould up to the rims for about two years; then the plants ſhould be turned out into the places where they are to remain, and they will be ſure of growing.

FAGUS.

LINNEAN Claſs and Order, *Monoecia Polyandria:* Male flowers and female flowers upon the ſame plant; the males containing about twelve ſtamina, and the females three piſtils each: There are three SPECIES:

1. *Fagus Sylvatica:* The BEECH; a well-known *tall deciduous tree*; common in England and moſt parts of Europe, alſo in Canada.

2. *Fagus Caſtanea:* The CHESNUT, or the SPANISH or SWEET CHESNUT; *a tall deciduous tree*; natural to the mountainous parts of the South of Europe.

3. *Fagus Pumila:* The DWARF CHESNUT, or the CHINQUEPIN; *a deciduous ſhrub*; native of North-America.

1. The BEECH. In ſtatelineſs, and grandeur of outline, the Beech vies with the Oak. Its foliage is peculiarly ſoft and pleaſing to the eye; its branches are numerous and ſpreading; and its ſtem waxes to a great ſize. The bark of the Beech is remarkably

ably ſmooth, and of a ſilvery caſt; this, added to the ſplendor and ſmoothneſs of its foliage, gives a ſtriking neatneſs and delicacy to its general appearance. The Beech, therefore, ſtanding ſingly, and ſuffered to form its own natural head, is highly *ornamental*; and its leaves varying their hue as the autumn approaches, renders it in this point of view ſtill more deſirable. In point of actual *Uſe* the Beech follows next to the Oak and the Aſh: it is almoſt as neceſſary to the cabinet-makers and turners (eſpecially about the Metropolis), as the Oak is to the ſhip-builder, or the Aſh to the plough and cart-wright. EVELYN nevertheleſs condemns it in pointed and general terms; becauſe "where it lies dry, or wet and dry, it is exceedingly obnoxious to the worm:" He adds, however, "but being put ten days in water, it will exceedingly reſiſt the worm." The natural ſoil and ſituation of the Beech is upon dry, chalky, or limeſtone heights: It grows to a great ſize upon the hills of Surry and Kent; as alſo upon the declivities of the Cotſwold and Stroudwater hills of Glouceſterſhire, and flouriſhes exceedingly upon the bleak banks of the Wye, in Hereford and Monmouth ſhires; where it is much uſed in making charcoal. In ſituations like thoſe, and where it is not already prevalent, the Beech, whether as a timber-tree or as an underwood, is an object worthy the planter's attention.

The method of PROPAGATING the Beech is from ſeeds: EVELYN is brief upon this head. For woods, he ſays, the Beech muſt be governed as the Oak:—In nurſeries, as the Aſh; ſowing the maſts "in autumn, or later, even after January, or rather nearer the ſpring, to preſerve them from vermin, which are very great devourers of them. But they are likewiſe to be planted of young ſeedlings to be drawn out of the places where the fruitful trees abound." MILLAR ſays, the ſeaſon for ſowing the maſts "is any time from October to February, only obſerving to ſecure the ſeeds from vermin when early ſowed, which, if carefully done, the ſooner they are ſown the better, after they are fully ripe." HANBURY orders a ſufficient quantity of maſts to be gathered about the middle of September, when they begin to fall: Theſe are to be "ſpread upon a mat in an airy place ſix days to dry; and after that you may either proceed to ſow them immediately, or you may put them up in bags in order to ſow them nearer the ſpring; which method I would rather adviſe, as they will keep very well, and there will be leſs danger of having them deſtroyed

by mice or other vermin, by which kinds of animals they are greatly reliſhed." They muſt be ſown in beds properly prepared (as directed under the article PROPAGATION FROM SEED, in the Introductory Part of this Work) about an inch deep. In the firſt ſpring many of the young plants will appear, whilſt others will not come up till the ſpring following. Having ſtood two years in the ſeminary, they ſhould be removed to the nurſery, where they may remain till wanted. More will be ſaid of the Beech under WOODLANDS.

2. The CHESNUT. This is a tree of the firſt magnitude; growing to a great height, and ſwelling to an immenſe ſize. Mr. Brydone, in a tour through Sicily and Malta, meaſured the ruins of a celebrated Cheſnut, called *Caſtagno de cento Cavalli*, ſtanding at the foot of Mount Etna, and made it "two hundred and four feet round!" The largeſt we know of in this country ſtands at Tortworth, near Berkley, in Glouceſterſhire. Sir Robert Atkins, in his Hiſtory of Glouceſterſhire, ſays, "By tradition, this tree was growing in King John's reign;" and Mr. Marſham calculates it to be "not leſs than eleven hundred years old." Sir Robert makes it nineteen yards, and Mr. Marſham forty-ſix feet ſix inches in circumference. With great deference however to the authority and veracity of theſe gentlemen, we have every reaſon to believe that what is called the Tortworth Cheſnut is not one, but two trees: ſuppoſing them to be only one, its dimenſions are by no means equal to what are given above. We have the higheſt opinion of Mr. Marſham's ingenuouſneſs and accuracy; and fortunately, in this caſe, he has furniſhed us with a proof of his candour, in ſaying, "As I took the meaſure in a heavy rain, and did not meaſure the ſtring till after I returned to the inn, I cannot ſo well anſwer for this as the other meaſures." We will venture to add, that had the day been fine, and Mr. Marſham had viewed the *field*-ſide as well as the *garden* ſide of this venerable ruin; had he climbed upon the wall, and ſeen the gable of the old building, adjoining, claſped in between the two ſtems; and had further aſcended to the top of the old ſtump, which is not more than twelve feet high, and, looking down its hollowneſs, ſeen its cavity tending not to the centre of the *congeries*, but to the centre of the *old Tree*, we are convinced he would not have ſuffered ſo inaccurate an account to have been publiſhed with his ſignature,

ſignature, as that which appears in page 81 of the Firſt Volume of Papers of the Bath Agriculture Society. The leaves of the Cheſnut are long, ſomewhat large, ſtrongly marked by the nerves, and of a dark and ſomewhat gloſſy appearance, in ſummer; but, in autumn, change to a yellow hue. In open uncrouded ſituations, the Cheſnut throws out large ſpreading arms, forming a magnificent ſtrongly-featured outline; whilſt in a cloſe-planted grove the ſtem will ſhoot up clean, and ſtraight as an arrow, to a great height.

As an *Ornamental*, the Cheſnut, though unequal to the Oak, the Beech, and the Eſculus, has a degree of greatneſs belonging to it which recommends it ſtrongly to the gardener's attention. Its *Uſes* have been highly extolled; and it may deſerve a conſiderable ſhare of the praiſe which has been given it. As a ſubſtitute for the Oak, it is preferable to the Elm: For door-jambs, window-frames, and ſome other purpoſes of the houſe carpenter, it is nearly equal to Oak itſelf; but it is very apt to be *ſhakey*, and there is a deceitful brittleneſs in it which renders it unſafe to be uſed as beams, or in any other ſituation where an uncertain load is required to be borne. It is univerſally allowed to be excellent for liquor caſks; as not being liable to ſhrink, nor to change the colour of the liquor it contains: it is alſo ſtrongly recommended as an underwood for hop-poles, ſtakes, &c. Its fruit too is valuable, not only for ſwine and deer, but as a human food: Bread is ſaid to have been made of it. Upon the whole, the Cheſnut, whether in the light of ornament or uſe, is undoubtedly an object of the planter's notice.

The PROPAGATION of the Cheſnut is chiefly from ſeeds: EVELYN ſays, "Let the nuts be firſt ſpread to ſweat, then cover them in ſand; a month being paſt, plunge them in water, and reject the ſwimmers; being dried for thirty days more, ſand them again, and to the water-ordeal as before. Being thus treated until the beginning of ſpring, or in November, ſet them as you would do Beans; and, as ſome practiſe it, drenched for a night or more in new milk; but with half this preparation they need only to be put into the holes with the point upmoſt, as you plant tulips."—"If you deſign to ſet them in winter or autumn, I counſel you to inter them in their huſks, which being every way armed, are a good protection againſt the mouſe, and a providential integument."—"Being come up, they thrive beſt unremoved,

unremoved, making a great ſtand for at leaſt two years upon every tranſplanting; yet if needs you muſt alter their ſtation, let it be done about November;—thus far EVELYN.—MILLAR cautions us againſt purchaſing foreign nuts that have been kiln-dried, which, he ſays, is generally done to prevent their ſprouting in their paſſage; therefore, he adds, "if they cannot be procured freſh from the tree, it will be much better to uſe thoſe of the growth of England, which are full as good to ſow for timber or beauty as any of the foreign nuts, though their fruit it much ſmaller." He alſo recommends preſerving them in ſand, and proving them in water. In ſetting theſe ſeeds or nuts, he ſays, "The beſt way is to make a drill with a hoe (as is commonly practiſed for kidney-beans) about four inches deep, in which you ſhould place the nuts, at about four inches diſtance, with their eye uppermoſt; then draw the earth over them with a rake, and make a ſecond drill at about a foot diſtance from the former, proceeding as before, allowing three or four rows in each bed."—"In April" (he does not mention the time of ſowing) "theſe nuts will appear above-ground; you muſt therefore obſerve to keep them clear from weeds, eſpecially while young: in theſe beds they may remain for two years, when you ſhould remove them into a nurſery at a wider diſtance. The beſt time for tranſplanting theſe trees is either in October, or the latter end of February, but October is the beſt ſeaſon: the diſtance theſe ſhould have in the nurſery is three feet row from row, and one foot in the rows. If theſe trees have a downright tap-root, it ſhould be cut off, eſpecially if they are intended to be removed again; this will occaſion their putting out lateral ſhoots, and render them leſs ſubject to miſcarry when they are removed for good. The time generally allowed them in the nurſery is three or four years, according to their growth, but the younger they are tranſplanted the better they will ſucceed. Young trees of this ſort are very apt to have crooked ſtems; but when they are tranſplanted out and have room to grow, as they increaſe in bulk they will grow more upright, and their ſtems will become ſtraight, as I have frequently obſerved where there have been great plantations."—HANBURY follows MILLAR almoſt literally; except that he mentions February as the time of ſowing; and recommends that the young plants, a year after they have been planted in the nurſery, be cut down to within

an

an inch of the ground; which, he ſays, "will cauſe them to ſhoot vigorouſly with one ſtrong and ſtraight ſtem." There is one material objection againſt ſowing Cheſnuts in drills, which are well known to ſerve as guides or conductors to the field-mouſe, who will run from one end to the other of a drill without letting a ſingle nut eſcape her: we rather recommend ſetting them with a dibble, either promiſcuouſly or a quincunx, at about ſix inches diſtance.

EVELYN ſays, that coppices of Cheſnuts may be thickened by layering the tender young ſhoots; but adds, that "ſuch as ſpring from the nuts and marrons are beſt of all." There is a ſtriped-leaved variegation which is continued by budding; and the French are ſaid to graft Cheſnuts for their fruit; but MILLAR ſays, ſuch grafted trees are unfit for timber.

The Cheſnut will thrive upon almoſt any ſoil which lies out of the water's way; but diſaffects wet moory land. See more of this tree under WOODLANDS.

3. The DWARF CHESNUT grows to about eight or ten feet high. The ſtem is of a brown colour, and divides into ſeveral branches near the top. The leaves are of an oval, ſpear-ſhaped figure, acutely ſerrated, with a hoary caſt on their under ſide. The flowers come out in the ſpring, in ſlender knotted catkins: They are of a greeniſh-yellow colour, and are very ſeldom ſucceeded by ripe ſeeds in England. This tree is hardy, and thrives beſt in a moiſt ſoil and ſhady ſituation.

The method of PROPAGATING the Dwarf Cheſnut is from ſeeds, which we receive from America. Theſe ſhould be planted in drills, as ſoon as they arrive, in a moiſtiſh bed of rich garden-mould. If the ſeeds are good, they will come up pretty ſoon in the ſpring. After they appear, they will require no trouble, except keeping them clean from weeds, and watering them in dry weather. They may ſtand in the ſeed-bed two years, and be afterwards planted in the nurſery-ground, at a foot aſunder and two feet diſtance in the rows; and here when they are got ſtrong plants, they will be fit for any purpoſe.

FRAXINUS.

LINNEAN Claſs and Order, *Polygamia Dioecia:* Hermaphrodite flowers and female flowers upon diſtinct plants: the former containing two males and one female each; the latter one piſtillum only: There are three SPECIES.

1. *Fraxinus Excelſior:* The COMMON ASH; a well-known *tall deciduous tree*; common throughout England and moſt parts of Europe.

2. *Fraxinus Ornus:* The FLOWERING ASH; *a low deciduous tree*; native of Italy and other ſouthern parts of Europe.

3. *Fraxinus Americana:* The AMERICAN ASH, *a low deciduous tree*; native of Carolina and Virginia.

1. The COMMON ASH is one of the loftieſt of our foreſt-trees. In a cloſe grove and in a ſoil it affects it lengthens out into a beautifully clean ſtem, and riſes to an aſtoniſhing height: But ſtanding ſingly, it throws out large arms, forms a full ſpreading head, and ſwells out into a ſtem proportionable: Mr. Marſham mentions a very flouriſhing one, growing in Benel church-yard, three miles north of Dunbarton, in Scotland, which, in 1768, meaſured, at five feet high, ſixteen feet nine inches in circumference. The leaves of the Aſh, too well known to require deſcription, are amongſt the laſt which foliate in the ſpring, and amongſt the firſt which fall in autumn. This alone depreciates its value very much as an *Ornamental*, eſpecially near gardens and gravel-walks: and planted ſingly or in hedges, it becomes an utter nuiſance in the neighbourhood it ſtands in: every huſbandman knows the injury it does to corn; and there are few dairy-women who are not well acquainted with the evil effects of its leaves, in autumn, upon the produce of her dairy; beſides, being large and numerous, they foul and injure the after-graſs by rotting amongſt it. Cloſe groves are the only proper ſituation for the Aſh; its uſes require a length and cleanneſs of grain; and it would be well for the occupiers of land, and, indeed, for the community at large, if a ſevere penalty was laid upon planting it in any other ſituation. To enumerate the *Uſes* of the Aſh would require a ſeparate volume: in this point of view it undoubtedly ſtands next to the Oak: The Farmer would find it difficult to carry on his buſineſs without it:

and,

and, indeed, the cooper and the coach-maker would be equally at a loſs with the wheel-wright, ſhould a ſcarcity of Aſh take place; and we know of no ſpecies of timber ſo likely to be worn out in this country as the Aſh. The juſt complaints of the Huſbandman are expelling it very properly from our hedges; and we are concerned to ſee, amongſt the numerous plantations which have of late years been made, ſo few of this neceſſary tree: it is therefore more than probable that no tree will pay better for planting; not, however, in ſingle trees and hedge-rows, but in cloſe plantations, in the manner which will be pointed out when we come to ſpeak generally of WOODLANDS.

The method of PROPAGATING the Aſh is from ſeeds; which are peculiarly prone to vegetation, and frequently catch under or near the tree they are produced upon, from whence tolerable plants may ſometimes be collected; but in general they are either cropt by cattle, or are drawn up ſlender and ill-rooted, and ſeldom make ſo good plants as thoſe raiſed by the gardener's aſſiſtance in a prepared ſeed-bed. EVELYN directs us to gather the keys from a young thriving tree in October or November, and having laid them to dry, ſow them "any time betwixt then and Chriſtmas; but not altogether ſo deep as your former maſts." (meaning thoſe of Beech, Hornbeam, &c.) "Thus they do in Spain, from whence it were good to procure ſome of the keys from their beſt trees." He recommends the young plants' ſtanding two years in the ſeminary, and cautions us, in removing them into the nurſery, "not to cut their head at all, which being young is pithy, nor by any means the fibrous part of the roots; only that down-right or tap-root, which gives our huſbandmen ſo much trouble in drawing, is to be totally abated; but this work ought to be in the increaſe of October or November, and not in the ſpring. We are, as I told you, willing to ſpare his head rather than the ſide branches (which whilſt young may be cut cloſe) becauſe being yet young, it is but of a ſpungy ſubſtance; but being once fixed, you may cut him as cloſe to the earth as you pleaſe; it will cauſe him to ſhoot prodigiouſly, ſo as in a few years to be fit for pike-ſtaves."—"Young Aſhes are ſometimes in winter froſt-burnt, black as coals; and then to uſe the knife is ſeaſonable, though they do commonly recover of themſelves ſlowly." He adds, "You may accelerate their ſpringing by laying the keys in ſand, and ſome moiſt earth, *ſtratum ſuper*

ſuper ſtratum;" but does not ſay that this preparation will cauſe them to vegetate the firſt ſpring. MILLAR ſays, "the ſeeds ſhould be ſown as ſoon as they are ripe, and then the plants will come up the following ſpring; but if the ſeeds be kept out of the ground till ſpring, the plants will not come up 'till the year after."—"If they make good progreſs in the ſeed-bed, (he ſays) they will be fit to tranſplant by the following autumn,"——"as ſoon as their le aves begin to fall." Great care (he ſays) is neceſſary in taking them up: they ſhould not be drawn, but taken up with a ſpade; clearing the whole bed at once, placing the larger together in rows, and the ſmaller by themſelves. "The rows ſhould be three feet aſunder, and the plants a foot and a half diſtance in the rows: in this nurſery they may remain two years, by which time they will be ſtrong enough to plant where they are to remain; for the younger they are planted the larger they will grow."——HANBURY is very deficient upon the ſubject of raiſing Aſhes in the nurſery way: he does not even tell us the depth at which the keys are to be ſown; nor, except in general terms, when they are to be ſown; namely, "ſoon after they are gathered."——We beg leave, however, to differ from theſe three great authorities. Inſtead of ſowing the keys in autumn, preſently after they are gathered, we venture to recommend their being ſown in the ſpring, in the firſt favourable opportunity in February or March; for being ſown in autumn ſome few may, and in general will, vegetate the firſt ſpring, whilſt much the greateſt part will lie in the ground until the ſpring following: the few that come up will be an incumbrance upon the beds, and will render the expence of clearing them the firſt ſummer unneceſſarily great; whereas, on the contrary, if the ſowing be deferred 'till ſpring, the hoe and rake will have free range over the beds, and the expence of cleaning them the firſt ſummer will be comparatively trifling. If the keys be well cured by ſpreading them thin in an airy place, and keeping them turned for a few days after gathering, they may be kept in a heap (moving them now and then) until ſpring, with ſafety. The depth proper for ſowing Aſhen keys is from one inch to an inch and a half or two inches, according to the ſtiffneſs or the lightneſs of the ſoil of the ſeed-bed. If they be ſown too deep in a cloſe-textured ſoil, they will be apt to be ſmothered; and if too ſhallow in a porous one,

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the drought has too much power over them, and they are liable to be diſturbed by the hoe and rake in clearing them the firſt ſummer after ſowing. Upon the approach of the ſecond ſpring, the ſurface of the beds ſhould be made as light and pulverous as poſſible, in order to give to the embryo plants a free admiſſion of air, and to facilitate their riſing: if part of the ſtale mould be raked off, and a little freſh earth be ſifted over in its ſtead, it will add conſiderable vigour to the young plants; which may be removed into the nurſery whenever the croudedneſs of the beds, the ſtrength of the plants, or the conveniency of the planter, may render it requiſite. For raiſing groves of Aſh ſee WOODLANDS.

There are three *Varieties* of the Common Aſh: The *Silver-ſtriped*; the *Gold-ſtriped*; and the *Yellow-coloured Aſh*. Theſe *varieties* may be continued by *budding*.

EVELYN tells us, that "Aſh may be propagated from a bough *ſlipt* off with ſome of the old wood, a little before the bud ſwells, but with difficulty by *layers*.

The Aſh will thrive in almoſt any ſoil; but delights moſt in a moiſt ſituation, ſo that it ſtand above the level of ſtagnant water; in marſhes, half-drained bogs, and by the ſides of rivers it flouriſhes extraordinarily, outgrowing even many of the aquatics themſelves.

2. The FLOWERING ASH. Of this ſpecies there are two kinds or *varieties*: The *Virginia Flowering Aſh*;—and the *Dwarf Aſh of Theophraſtus*.

The *Virginia Flowering Aſh* when in blow is inferior in beauty to few of our flowering trees. It will grow to near thirty feet in height. The branches of this ſort, in the winter, have nearly the ſame appearance with the Common; only they are, eſpecially the youngeſt, more inclined to a black caſt: The buds alſo, which will begin to ſwell in the autumn, are of that hue. The branches will not burn, when green, ſo well as thoſe of the Common Aſh. The leaves are of a fine green, ſmooth, ſerrated, and conſiſt of about three or four pair of folioles, placed a good way aſunder along the mid-rib; and they are uſually terminated by an odd one. The mid-rib is long, but not ſtraight; ſwelling where the leaves, which fall off early in the autumn, come out. The flowers are white, produced in May, in large bunches, at the ends of the branches. HANBURY ſays, "I have had this tree,

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the ſecond year from the bud, produce, on the leading ſhoot, a tuft of flowers; and although this is not common, yet, when it gets to be about ten feet high, almoſt every twig will be terminated with them. The flowers exhibit themſelves not in a gaudy dreſs, but in a looſe eaſy manner, all over the tree, which, together with the green leaves peeping from amongſt this white bloom, makes the appearance extremely pleaſing. I have never yet known the flowers to be ſucceeded by ſeeds."

Dwarf Aſh of Theophraſtus is, as the name imports, a low tree for the Aſh tribe; about fourteen or fifteen feet is the height it generally aſpires to. The branches are ſmooth, and of a darkiſh green. The leaves are pinnated, of a dark green, and ſerrated on the edges, but proportionably ſmaller than thoſe of the Common Aſh. The flowers of this ſort make no ſhow, though they are poſſeſſed of the petals neceſſary to complete a flower, which are denied the Common Aſh.

3. AMERICAN ASH. The *varieties* of this ſpecies are, Manna Aſh, White Aſh, Red Aſh, Black Aſh, and New-diſcovered Aſh.

Manna Aſh will grow to about twenty feet high. It will ſometimes ſhoot eight feet the firſt year from the bud, though it ſeldom ſhoots more than two feet in a ſummer afterwards. The bark of the young ſhoots is ſmooth, of a browniſh-green, and has a few greyiſh ſpots. The leaves are compoſed of four or five pair of folioles, placed on a ſtraight mid-rib; they are of a fine pleaſant green, and more acutely and deeply ſerrated than any of the other ſorts. The flowers make no ſhow: They are partly the colour of thoſe of the Common Aſh, and are produced, like them, early in the ſpring, before the leaves appear.

White Aſh is ſo called from the whitiſh colour of the young branches in winter. They are ſpotted all over with many white ſpots, which makes their colour that of a lightiſh-grey. This ſort will arrive to about thirty feet high; and the branches are ſtrong, and produced in an irregular manner. The folioles which compoſe the leaves are of a light green, and obtuſely ſawed on the edges: They ſeldom conſiſt of more than three pair, with the uſual odd one, which has a long point; and theſe are placed far aſunder, on the mid-rib. Theſe leaves fall off early in the autumn, when they are of a light colour: This, together with the grey branches, make the tree have a whitiſh look. The flowers are

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produced in the ſpring, and make no ſhow. This ſort is commonly called the New-England Aſh.

Red Aſh. The Red Aſh is a ſtronger ſhooting tree than any of the former, the Common Aſh excepted. The branches, which are fewer, are ſmooth, and the young ſhoots are of a reddiſh colour in the autumn. The leaves of this ſort make the moſt noble figure of any of the others; for although they are ſeldom compoſed of more than three pair of folioles, beſides the odd one, yet theſe are exceedingly large, eſpecially the odd one, which will be ſometimes ſix inches long, and three and an half broad. The pair next it, alſo, will be fine and large; though they diminiſh in ſize as they get nearer the baſe of the footſtalk. Theſe folioles are diſtinctly ſawed on their edges, are of a fine light-green during the ſummer, and in the autumn die to a red colour; from which circumſtance, together with that of their red twigs, this ſort takes the denomination of the Red Aſh. It has its ſeeds very broad, and is commonly called the Carolina Aſh.

Black Aſh we receive from abroad by that name; though it is difficult to ſee the propriety of its being ſo called. The colour of the ſhoots is nearly like that of the White Aſh; but they ſhoot ſtronger, and promiſe to form a larger tree. The leaves are large, and ribbed underneath; of a very dark green, and die to a ſtill darker in the autumn. The folioles are not ſo large as thoſe of the Red ſort, but they quit the tree about the ſame time. The keys are very broad, and, when we receive them, of a blackiſh colour.

" *New-diſcovered Aſh* I received from Pennſylvania, where it was diſcovered growing in the woods near Philadelphia. The keys are very ſmall and flat, and come up in a fortnight after being ſown. The young ſhoots of this ſort are covered with the ſame kind of bark as the White Aſh, and the leaves nearly reſemble thoſe of the Black Aſh, tho' they are not quite ſo large." HANBURY.

All the ſorts of foreign Aſhes are eaſily PROPAGATED. 1. By ſeeds, if they can be procured from abroad. We often have them in February; and if they are ſown directly, they will ſometimes come up the beginning of May, though they generally lie, or at leaſt the greateſt part of them, until the ſpring following. The beds may be made in any part of the garden; and almoſt any ſort of garden-mould, made fine, will do for the purpoſe. After

the ſeeds are ſown, they will want no other care than weeding, until the plants are a year or two old in the ſeed-bed, when they may be taken up, and planted in the nurſery, at the uſual diſtance of a foot aſunder, and two feet in the rows, which will be ſufficient for them till they are finally taken up. 2. Budding is another good method of propagating theſe trees; ſo that thoſe who have not the convenience of a correſpondence in the countries where they grow naturally, ſhould procure a plant or two of a ſort, and raiſe young Aſhes of the Common ſort for ſtocks. Theſe ſtocks ſhould be planted out in the nurſery, a foot aſunder, and two feet diſtant in the rows. When they are one year old, and grown to be about the thickneſs of a bean-ſtraw, they will be of a proper ſize for working. A little after Midſummer is the time for the operation; and care muſt be obſerved not to bind the eye too tight. They need not be unlooſed before the latter end of September. In March, the head of the ſtock ſhould be taken off, a little above the eye; and by the end of the ſummer following, if the land be good, they will have made ſurpriſing ſtrong ſhoots, many of them ſix feet or more.

GENISTA.

LINNEAN Claſs and Order, *Diadelphia Decandria:* Each flower contains ten males and one female; the males ſtanding in two diviſions: There are fourteen SPECIES; ſeven of which come under our notice:

1. GENISTA *Tridentata:* The PORTUGAL BROOM; *a deciduous ſhrub*; native of Portugal and Spain.

2. GENISTA *Tinctoria:* The DYER'S BROOM, or WOOD-WAXEN; *a low deciduous ſhrub*; native of England and Germany.

3. GENISTA *Piloſa:* The BRANCHING BROOM; *a deciduous ſhrub*; native of Hungary, Germany, and France.

4. GENISTA *Anglica:* The DWARF ENGLISH BROOM, or PETTY WHIN; *a deciduous ſhrub*; natural to moiſt, heathy grounds in ſeveral parts of England.

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5. GENISTA *Germanica*: The PRICKLY GERMAN BROOM; *a low deciduous ſhrub*: native of Germany.

6. GENISTA *Hiſpanica*: The PRICKLY SPANISH BROOM; *a deciduous ſhrub*; native of Spain and France.

7. GENISTA *Candicans*: The ITALIAN BROOM, or The CYTISUS OF MONTPELIER; *a low deciduous ſhrub*; native of Italy and about Montpelier in France.

*** For another Claſs of BROOMS, ſee SPARTIUM.

1. The PORTUGAL BROOM is one of the larger growers: It will arrive to be five or ſix feet high: the branches are very ſlender, tough, and for the moſt part three-cornered and jointed. The leaves end in three points, and are ſmall; though ſome of them will be produced by threes, in ſuch a manner as to be entirely trifoliate leaves; whilſt others again are often found ſingle. By the beginning of May, this ſhrub will be in blow. The flowers, which are yellow and of the butterfly kind, are each very large: They grow from the ſides of the branches, and wings of the leaves, ſingly, on ſhort footſtalks, and are produced in ſo free and eaſy a manner, that they may not improperly be ſaid to have a genteel appearance. They are ſucceeded by pods, in which are contained kidney-ſhaped ſeeds, that will be ripe in autumn.

There are two *varieties* of this ſpecies of Broom, one with larger, the other with narrower leaves, both of which are ſought after by thoſe who are fond of having great varieties. Theſe ſorts are the leaſt kinds, and require a ſheltered ſituation.

2. The DYER'S BROOM. Of this ſpecies there are two varieties, one of which has a narrower leaf, and grows more upright; the other is more ſpreading in its branches. Their natural growth is about two or three feet high, and their branches are taper and channelled. The leaves are of a lance-like figure, and placed alternately on the branches. Theſe branches will produce ſpikes of yellow flowers in June, in ſuch a manner, that though each individual flower is but ſmall for thoſe of the butterfly kind, the whole ſhrub will appear covered with them to the pleaſure of all beholders. Theſe flowers are ſucceeded by pods, which will have ripe ſeeds in the autumn.

3. BRANCHING BROOM, as the name indicates, is a plant whoſe branches ſpread abroad, and decline towards the earth's

ſurface. The main ſtalk is beſet all over with tubercles, and the leaves that ornament the ſlender branches are obtuſe and ſpear-ſhaped. The flowers, which are yellow, are produced at the ends of the branches, in ſpikes, in June; and they are exhibited in ſuch profuſion as to make a delightful ſhow. They are ſucceeded by pods that ripen their ſeeds in autumn.

4. Dwarf English Broom has many beauties to recommend it to the gardener, though it grows common in many of our barren heaths. In theſe places, it goes by the cant name of *Petty-Whin*. All the ſorts of our choiceſt cultivated plants grow wild in ſome parts of the globe, but loſe nothing of their value becauſe they appear thus ſpontaneouſly: Why then ſhould this, becauſe it is common in ſome parts of England, be denied admittance into gardens, eſpecially thoſe that are at a remote diſtance from ſuch places, as it has many natural beauties to recommend it? It is a low plant, ſeldom growing to be more than two feet high; on which account no garden is ſo ſmall but it may be there planted, if the commonneſs of it be no objection to the owner. This ſhrub has ſome ſingle, long ſpines, though the flower-branches are entirely free from them. The leaves, like the ſhrub, are proportionally ſmall, of a lanceolated figure, and grow alternately on the branches. The flowers, which are of a fine yellow, are produced the beginning of May, in cluſters, at the ends of the branches; and are ſucceeded by thick ſhort pods, in which the ſeeds are contained.

5. German Prickly Broom will grow to be about a yard high. The ſhrub is armed with many compound ſpines; the branches are ſlender and numerous, though thoſe that produce the flowers are entirely free from ſpines. The leaves of this ſort, alſo, are ſmall, and of a lanceolate figure, and grow alternately on the branches. The flowers are produced in plenty at the ends of the branches, in June: They are of the colour and figure of the others, and are ſucceeded by pods, in which the ſeeds are contained.

6. Prickly Spanish Broom will grow to be five or ſix feet high. This ſhrub is poſſeſſed of many compound ſpines; though the branches that produce the flowers are entirely free from them. The leaves are exceeding narrow, many of them being no wider than a thread, but very hairy. The flowers are yellow,

yellow, produced in May, in cluſters, at the ends of the branches; and are ſucceeded by hairy compreſſed pods, in which the ſeeds are contained.

7. ITALIAN BROOM riſes, with an erect, ſhrubby, branching, ſtriated ſtalk, to the height of about a yard. The leaves are trifoliate, oval, and hairy underneath. The flowers come out on leafy foot-ſtalks, from the ſides of the branches: They are of a bright yellow colour, appear in June, and are ſucceeded by hairy pods, containing ripe ſeeds, in September.

The beſt way of PROPAGATING all theſe ſorts is by ſeeds; and if theſe are ſown ſoon after they are ripe, they will come up earlier in the ſpring, and make better plants by the autumn. They ſhould only ſtand one year in the ſeed-bed before they are tranſplanted. They ſhould be taken up in the ſpring, and planted out finally, in ground properly prepared for ſuch ſmall plants; for the leſs they are removed, ſo much the faſter will they thrive; as they naturally grow with long ſtrong ſtringy roots, that do not love to be diſturbed; on which account, if places in the plantations were to be marked out, the mould made fine, a few ſeeds of the different ſorts ſown, and ſticks ſet as guides to prevent their being hoed or dug up; plants that have been thus raiſed, without removing, will ſhoot ſtronger, and flower better, than any that have been brought from the ſeed-bed or nurſery. After they are come up, if there be too many in a place, the weakeſt may be drawn out, and only two or three of the ſtrongeſt left, which will cauſe them to flower better and ſtronger.

GLEDITSIA.

LINNEAN Claſs and Order, *Polygamia Dioecia:* Hermaphrodite flowers and male flowers upon one plant, and female flowers upon a different plant. There are two SPECIES: one of them a Stove-plant; the other

GLEDITSIA *Triacanthos:* The TRIPLE-THORNED ACACIA; *a deciduous tree*; native of Virginia and Pennſylvania.

The GLEDITSIA. Its growth is naturally upright, and its trunk is guarded by thorns of three or four inches in length, in

a remarkable manner. Theſe thorns have alſo others coming out of their ſides at nearly right angles: Their colour is red. The branches are ſmooth, and of a white colour. Theſe are likewiſe armed with red thorns, that are proportionally ſmaller: They are of ſeveral directions, and at the ends of the branches often ſtand ſingle. The young ſhoots of the preceding ſummer are perfectly ſmooth, of a reddiſh green, and retain their leaves often until the middle of November. Although there is a peculiar oddity in the nature and poſition of the ſpines, yet the leaves conſtitute the greateſt beauty of theſe trees: They are doubly pinnated, and of a delightful ſhining green. The pinnated leaves that form the duplication, do not always ſtand oppoſite by pairs on the middle rib; the pinnæ of which they are compoſed are ſmall and numerous; no leſs than ten or eleven pair belong to each of them; and as no leſs than four or five pair of ſmall leaves are arranged along the middle rib, the whole compound leaf conſiſts often of more than two hundred pinnæ of this fine green colour; They ſit cloſe, and ſpread open in fine weather; though during bad weather they will droop, and their upper ſurfaces nearly join, as if in a ſleeping ſtate. The flowers are produced from the ſides of the young branches, in July: They are a greeniſh katkin, and make little ſhow; though many are ſucceeded by pods, that have a wonderful effect; for theſe are exceedingly large, more than a foot, ſometimes a foot and a half in length, and two inches in breadth, and of a nut-brown colour when ripe; ſo that the effect they occaſion, when hanging on the ſides of the branches, may eaſily be gueſſed.

There is a *variety* of this ſpecies, with fewer thorns, ſmaller leaves, and oval pods. It has nearly the reſemblance of the other; though the thorns being not ſo frequent, and the pods being ſmaller, each containing only one ſeed, this ſort loſes that ſingular effect which the other produces by them.

The PROPAGATION of theſe trees is not very difficult. We receive the ſeeds from America in the ſpring, which keep well in the pods, and are for the moſt part good. They generally arrive in Febuary; and, as ſoon as poſſible after, they ſhould be ſown in a well-ſheltered warm border of light ſandy earth. If no border is to be found that is naturally ſo, it may be improved by applying drift ſand, and making it fine. The ſeeds ſhould be ſown about half an inch deep; and they will for the moſt part come

come up the firſt ſpring. If the ſummer ſhould prove dry, they muſt be conſtantly watered; and if ſhade could be afforded them in the heat of the day, they would make ſtronger plants by the autumn. A careful attention to this article is peculiarly requiſite; for as the ends of the branches are often killed, if the young plant has not made ſome progreſs, it will be liable to be wholly deſtroyed by the winter's froſt, without protection: And this renders the ſowing the ſeeds in a warm border, under an hedge, in a well-ſheltered place, neceſſary; for there theſe ſhrubs will endure our winters, even when ſeedlings, and ſo will require no farther trouble; nay, though the tops ſhould be nipped, they will ſhoot out again lower, and will ſoon overcome it. It will be proper to let them remain two years in the ſeed-bed, before they are planted out in the nurſery. The ſpring is the beſt time for the work. Their diſtances ſhould be one foot by two; the rows ſhould be dug between every winter; and, being weeded in ſummer, here they may remain, with no other particular care, until they are ſet out to remain. Theſe trees are late in the ſpring before they exhibit their leaves, but keep ſhooting long in the autumn.

GLYCINE.

LINNEAN Claſs and Order, *Diadelphia Decandria:* Each flower contains ten males riſing in two diviſions, and one female. There are fourteen SPECIES; five of which have been enured to the open air of this country.

1. GLYCINE *Fruteſcens:* The CAROLINA KIDNEY BEAN; *a climber*; native of Carolina and Virginia.

2. GLYCINE *Apios:* The ASH-LEAVED MILK-VETCH; *a climber*; native of Virginia.

3. GLYCINE *Tomentoſa:* The CLIMBING REST-HARROW; *a climber*; native of Virginia.

4. GLYCINE *Comoſa:* The MARYLAND KIDNEY BEAN; *a climber*; natural to moiſt ſhady places in Virginia.

5. GLYCINE *Monoica:* The VIRGINIA GLYCINE; *a climber*; native of moiſt ſhady places in Virginia.

1. CAROLINA KIDNEY BEAN does not riſe by the aſſiſtance of claſpers, but by the twining branches, which naturally twiſt round any adjacent tree; nay, if trees are ten feet or more diſtance from the root of the plant, its branches, being too weak to ſupport themſelves, will trail along the ground until they reach theſe trees, and then they will twine their branches with theirs, and arrive to a great height: Indeed, where trees are near at hand, and they begin by the firſt ſpring-ſhoot to twiſt about them, they will twine up to them to the height of near twenty feet. This climber is poſſeſſed of noble large pinnated leaves, very much like thoſe of liquorice. The folioles are about three pair in number, arranged on their common mid-rib, and they always end with an odd one. Their colour is for the moſt part of a lightiſh hoary caſt, with a blueiſh tinge. The flowers are very large and ornamental: Their colour is that of a blueiſh purple, and their general characters indicate their ſtructure. They are produced from the wings of the leaves, in July and Auguſt; and are ſucceeded by long pods, like Kidney Beans.

This fine climber is eaſily PROPAGATED, 1. By ſeeds, if there is a convenience of procuring them from abroad; for they never ripen with us. In the ſpring, as ſoon as we receive them, they ſhould be ſown, in fine beds of light ſandy earth, half an inch deep. They will readily come up, and all ſummer muſt have frequent waterings; and if the beds be ſhaded in hot weather, it will be the better. In winter the beds ſhould be hooped, and covered with mats in froſty weather: And in ſpring the ſtrongeſt may be drawn out, which will thin the bed, and make way for the others, which ſhould ſtand until the next ſpring. Plants thus drawn ſhould be ſet in the nurſery, at ſmall diſtances, and in a year or two after, they will be good plants for any place where they are wanted. 2. This plant is alſo eaſily encreaſed by layers; for if the young ſhoots of the preceding ſummer be laid in the ground in the autumn, by the autumn following they will have ſtruck root; when the beſt-rooted and ſtrongeſt layers may be planted out to ſtand where they are wanted, whilſt the weaker, or thoſe with hardly any root, may be ſet in the nurſery, like the ſeedlings, to gain ſtrength.

2. The

2. The Ash-leaved Milk-Vetch will twine from ſix to twelve feet high, according to the nature of the ſoil; for in a rich fat mould it will grow near double the length it will in a ſoil of an oppoſite nature. The ſtalks die to the ground every autumn: and in the ſpring new ones are iſſued forth from the roots, which are compoſed of many knobs, that encreaſe in number, the longer the plant is ſuffered to remain. The leaves ſomewhat reſemble thoſe of the Aſh-tree, being pinnated almoſt in the ſame manner. The folioles, which conſiſt of three pair beſides the odd one, are of an oval lanceolate ſhape; and being arranged oppoſite along the mid-rib, and terminated with a ſingle one, form a fine leaf. The flowers are produced from the ſides of its twining ſtalks, in Auguſt. They grow in ſmall ſpikes, are of a reddiſh colour, and being of the butterfly or pea-bloſſomed kind, make a pretty good ſhow. Theſe flowers are ſometimes ſucceeded by pods, which never perfect their ſeeds with us.

3. Climbing Reſt-Harrow is but a low plant for a climber, ſeldom ariſing higher than five feet. The ſtalk dies to the ground every autumn; and the loſs is repaired by a natural ſucceſſion preſented from the root every ſpring. The leaves are trifoliate and very downy. Every one knows the beauty that ariſes from leaves of an hoary nature, amongſt the variety of greens of different tinges. The flowers are of the pea-bloom kind, and are produced in ſhort bunches, in June and July, from the ſides of the ſtalks. They are of a yellow colour, and, though they are rather ſmall in proportion, are very beautiful. They are ſucceeded by pods, in which two ſeeds only are contained, and which will be ripe with us in September.

4. The Kidney Bean Plant of Maryland has a ſlender, annual, twining ſtalk, which will ariſe to be three or four feet high. The leaves are trifoliate, and ſit cloſe to the ſtalks. They are hairy, and the folioles are of an oval lanceolate ſhape; and being of a good green, make the whole ornamental enough. But the greateſt ornament this plant receives is from the flowers, which are alſo of the pea-bloom kind, and are of a clear blue. They are produced in June, from the ſides of the ſtalks, in fine recurved

recurved bunches; and theſe are ſucceeded by pods, which will have ripe ſeeds in Auguſt or September.

5. The VIRGINIAN GLYCINE will ariſe with its ſlender branches to a degree higher than the other. The ſtalks are hairy, and the leaves with which they are ornamented are trifoliate and naked. The flowers are produced from the ſides of the ſtalks, in June and July. They grow in pendulent bunches, and are alſo of the butterfly kind. They are very beautiful, and each exhibits a variety of colours; for the wings and the keel are white, whilſt the ſtandard is of a pale violet colour. Theſe flowers are ſucceeded by compreſſed half-rounded pods, hanging by lengthened peduncles; and the ſeeds will often be ripe in September.

All theſe ſorts are PROPAGATED by the ſeeds; and this may be in the places where they are to remain, or in warm well-ſheltered beds, or in pots, to be houſed for the firſt winter, if it ſhould prove ſevere. They will very readily come up; and if they are ſown in the open ground, the beds ſhould be hooped at the approach of winter, to be covered with mats, in caſe it ſhould prove bad. It will be proper to plunge thoſe ſown in pots, immediately after, up to the rims in the natural mould; this will keep them cool and moiſt: At the approach of hard froſts, they may be removed into the greenhouſe; and in ſpring may be turned out into the places where they are deſigned to remain. Thoſe in the beds, alſo, ſhould be tranſplanted to ſuch places: Their after-management will be only to part the roots about every three or four years; and by this method alſo they may be all encreaſed. The ſpring is the beſt time for parting the roots; and by this way th y may be multiplied faſt enough. As to the firſt ſort, this method is chiefly practiſed for its propagation, as it does not ripen its ſeeds here, unleſs there is a conveniency of procuring them from abroad. The roots of this ſort are compoſed of ſeveral knobs; and theſe being taken up and divided readily grow, and become good plants.

Theſe perennials are all proper to be planted amongſt ſhrubs in warm and well-ſheltered places; for they are rather of a tender nature, and are often deſtroyed by ſevere froſts. As the ſtalks are all annual, as ſoon as they decay at the approach of winter, they ſhould be cut up cloſe to the ground, and cleared off ſuch plants as are near them, by which they have aſpired,

otherwiſe

otherwiſe they will have a dead paltry look, and render the place inelegant; for, even in the dead of winter, neatneſs and elegance muſt be obſerved, which will not only ſhew a more promiſing expectation of a reſurrection, but the clearing away old ſtalks, &c. will be better for the plants themſelves, as they would in ſome degree hinder and choke the young ſhoots as they advance in the ſpring.

GUILANDINA.

LINNEAN Claſs and Order, *Decandria Monogynia:* Each flower contains ten males and one female: There are five SPECIES: one of which will ſtand our winter.

GUILANDINA *Dioica:* The CANADA NICKAR-TREE; *a deciduous tree or ſhrub*; native of Canada.

The CANADA NICKAR TREE. The ſtem is erect, firm, often twenty feet high, and ſends forth ſeveral branches, which are covered with a ſmooth, bluiſh, aſh-coloured bark. The leaves are bipinnated; and the folioles are large, ſmooth, entire, and ranged alternately on the mid-rib. The flowers appear in July or Auguſt; but are very rarely ſucceeded by ſeeds in England.

This ſpecies is PROPAGATED, 1. By ſeeds, which muſt be procured from the places where the tree naturally grows. The ſeeds are very hard, and often lie two years before they make their appearance; ſo that if they are ſown in common ground, the beds muſt all the time be kept clean from weeds. In the autumn it will be proper to ſtir the ſurface of the mould, but not ſo deep as to diſturb the ſeeds. In the ſpring the plants will come up: All ſummer they muſt be kept clean from weeds, watered in dry weather, and in the autumn the ſtrongeſt may be planted out in the nurſery, at the uſual diſtance, while the weakeſt may remain another year in the ſeed-bed to gain ſtrength. The ſeeds alſo may be ſown in pots, and plunged into a hot-bed: This will bring the plants up the firſt ſpring.

After

After they make their appearance, they muſt be hardened by degrees to the open air. 2. This tree may likewiſe be propagated by layers. Theſe muſt be the ſmaller ſhoots of the laſt year's wood. The operation muſt be performed by making a ſlit, as is practiſed for carnations; and the beſt time for the buſineſs is the autumn. 3. By cutting the root, alſo, this tree may be encreaſed. In order to this, bare away the earth from the top of the root; then with the knife cut off ſome parts of it, leaving them ſtill in the ground, and only directing their ends upwards: Then cover the whole down lightly with mould. The parts that have been ſeparated will ſhoot out from the ends, and come up as ſuckers all round the tree. If dry weather ſhould happen, you will do well to water them all the ſummer; and in the autumn they may be removed to the place where they are deſigned to remain; which ought always to be in a light dry ſoil, in a well-ſheltered place.

HAMAMELIS.

LINNEAN Claſs and Order, *Tetrandria Digynia:* Each flower contains four males and two female: There is only one SPECIES:

HAMAMELIS *Virginica:* The DWARF HAZEL; *a low deciduous ſhrub*; native of Virginia.

The DWARF HAZEL is a ſhrub of about four feet in growth, and will conſtitute a variety among other trees, though there is no great beauty in it, except what is afforded by the leaves. Theſe are placed on the branches, which are numerous and ſlender, in an alternate manner, and much reſemble thoſe of our Common Hazel, that are known to all. The flowers make no ſhow; but perhaps the time of their appearing, which happens in winter, in November or December, when they will be produced in cluſters from the joints of the young ſhoots, may make the plant deſirable to ſome perſons. Nothing farther need be ſaid to the gardener concerning this ſhrub, which nature ſeems

to

to have deſigned for the ſtricter eye of the botaniſt; ſo that we ſhall proceed to its culture.

It is PROPAGATED, 1. By ſeeds, which muſt be procured from America, for they do not ripen here. An eaſterly border, well defended from the north and weſterly winds, is beſt for their reception; for theſe plants, when ſeedlings, are rather tender; when older, they are hardy enough. They will grow in almoſt any kind of good garden-mould, made fine; and they ſhould be covered about half an inch deep. They will not come up before the ſecond, and ſometimes the third ſpring. 2. This tree may alſo be PROPAGATED by layers; ſo that whoever has not the conveniency of procuring the ſeeds from abroad, having obtained a plant or two, may encreaſe them this way. The operation ſhould be performed on the twigs of the preceding ſummer's ſhoot: Theſe ſhould be ſlit at the joint, and a bit of chip, or ſomething, put in to keep the ſlit open. If theſe ſtools ſtand in a moiſtiſh place, which theſe ſhrubs naturally love, and are layered in the autumn, they will have ſhot root by the autumn following; and may be then either planted out in the nurſery, or where they are to remain.

HEDERA.

LINNEAN Claſs and Order, *Pentandria Monogynia:* Each flower contains five males and one female: There are only two SPECIES:

1. HEDERA *Felix:* The COMMON IVY; a well-known *evergreen climber*; native of England and moſt parts of Europe.

HEDERA *Quinquefolia:* The DECIDUOUS IVY, or the VIRGINIAN CREEPER; *a deciduous climber*; native of Virginia and Canada.

1. The COMMON EVERGREEN IVY. Beſides the genuine ſpecies there are three *varieties:* namely, the Yellow-berried Ivy; the Gold-ſtriped Ivy; and the Silver-ſtriped Ivy.

The

The *Common Ivy* is well known all over England, and how naturally it either trails on the ground, or riſes with walls or trees, ſtriking its roots all along the ſides of the branches for its ſupport. It chiefly delights in old houſes or walls; and when it has taken poſſeſſion of any outſide of the outer buildings, will ſoon cover the whole. It will make ſurpriſing progreſs when it reaches old thatch; and will ſoon, if unmoleſted, climb above the chimney itſelf. Neither are old houſes or walls what it chiefly likes to grow on; for it will ſtrike its roots even into the bark of trees. But above all, it chiefly affects old rotten trees or dodderels; for theſe it will almoſt cover, and rear its head with a woody ſtem above the trunk, and will produce flowers and fruit in great plenty. There, as well as on the ſides of old walls and buildings, it becomes a habitation for owls and other birds. The uſefulneſs of Ivy, then, in Gardening, is to over-run caves, grottos, old ruins, &c. to which purpoſe this plant is excellently adapted; and were it not for its commonneſs, it would be reckoned inferior to few evergreens; for the older grey ſtalks look well, whilſt the younger branches, which are covered with a ſmooth bark of a fine green, are very beautiful. The leaves, alſo, are of a fine ſtrong green, are large and bold, and make a variety among themſelves; for ſome are compoſed of lobes, whilſt others are large, and of an oval figure. The flowers are nothing extraordinary, unleſs it be for the figure in which they grow. This is ſtrictly the *Corymbus*; and all flowers growing in ſuch bunches are called by Botaniſts Corymboſe Flowers. The fruit that ſucceeds them, however, is very beautiful; for being black, and growing in this round regular order, and alſo continuing on all winter, it makes the tree ſingular, and, were it not for its commonneſs, deſirable. It is obſervable, if Ivy has no ſupport, but is left to creep along the ground only, it ſeldom flowers; but having taken poſſeſſion of rails, hedges, trees, or buildings, from theſe it ſends out woody branches, which produce the flowers and fruit.

The *Yellow-berried Ivy* differs from the Common Ivy in that its berries are yellow. It grows common in the iſlands of the Archipelago; and is at preſent rare with us. This is the *Hedera Poetica* of old authors.

The

The *Gold-ſtriped Ivy* is the Common Ivy with yellow-blotched leaves; though it is obſervable, that this ſort has very little inclination to trail along the ground, or up trees or buildings, as it naturally riſes with woody branches, and forms itſelf into a buſhy head: So that this ſort may be planted amongſt variegated trees, or evergreens, as a ſhrub. Let it be ſet where it will, it is very beautiful; for the leaves will be a mixture of yellow and green; and ſometimes they will have the appearance of being all yellow, thereby cauſing a very ſingular and ſtriking look at a diſtance.

The *Silver-ſtriped Ivy* is a variety of our Common ſort, though the branches are naturally more ſlender. The leaves alſo are ſmaller; and of all the ſorts this creeps the cloſeſt to walls or buildings, or is of ſtrength ſufficient to form its ligneous branches, when got to the top, to any head. "This plant (continues HANBURY, with whom it ſeems to be a very great favourite) is of all others to be planted againſt walls for ornament; for its leaves are very finely ſtriped with ſtreaks of ſilver, and the ſets being firſt planted at ſmall diſtances, will ſoon cover them all over, ſo as to have a delightful look. A more beautiful ornament to a wall cannot be conceived, than what belongs to a wall of Charles Morris, Eſq. of Loddington. It conſiſts of theſe plants, which having firſt taken properly to the ground, and afterwards to the mortar-joints, have ſo over-ſpread the ſurface as to be a ſight, of the kind, ſuperior to any I ever beheld; and I am perſuaded there are few people of taſte, who had ſeen any thing of this nature, but would be induced to have the like, even againſt their choiceſt walls. And here let it always be remembered, that whereas our Common Green Ivy is to hide and keep from view all old and unſightly walls, ſo the Silver-ſtriped Ivy is to ornament all walls, even thoſe of the fineſt ſurface."

2. The DECIDUOUS AMERICAN IVY is a real ſpecies of the *Hedera*. It ſheds its leaves in the autumn; and will ſpread itſelf over pales, walls, buildings, &c. in a very little time. It puts forth roots at the joints, which faſten into mortar of all ſorts; ſo that no plant is more proper than this to hide the unſightly ſurface of an old barn end, or any other building which cannot be concealed from the view by trees being planted at ſome diſtance;

diſtance; as in one year it will ſhoot often near twenty feet, and, let the building be ever ſo high, will ſoon be at the top of it. The bark on the ſhoots is ſmooth, and of a brown colour; and the buds in the ſpring, as they are beginning to open, will be of a fine red. The leaves are large and well-looking. Each is compoſed of five ſmaller, which are ſerrated at their edges. Their common foot-ſtalk is proportionably ſtrong, and they die to a fine red in the autumn.

All the ſorts are to be PROPAGATED by cuttings; for theſe being ſet any time in the winter, in almoſt any ſoil, will ſtrike root by the autumn following; and if they are permitted to remain another year, they will then be ſtrong plants, fit to be ſet out for good. The Common Ivy is alſo to be raiſed from ſeeds.

HIBISCUS.

LINNEAN Claſs and Order *Monadelphia Polyandria:* Each flower contains numerous males and one female; the males being joined together at the baſe. There are thirty-ſeven SPECIES; one of which adds great beauty to our grounds and ſhrubberies, in autumn.

HIBISCUS *Syriacus:* The ALTHEA FRUTEX, o the SYRIAN MALLOW, or the SYRIAN HIBISCUS; *a deciduous ſhrub*; native of Syria.

The ALTHEA FRUTEX, or the SYRIAN HIBISCUS. Of this ſpecies there are ſeveral *varieties:*

The *White Althea Frutex.*

Red-flowering Althea Frutex.

Yellow-flowering Althea Frutex.

Pale Purple-flowering Althea Frutex.

Deep Purple Althea Frutex.

All

All theſe, though ſuppoſed to be only ſorts of one ſpecies of *Hibiſcus*, afford wonderful varieties to the gardener. They will grow to the height of about ſix feet. Their branches are not very numerous; they are ſmooth, and of a whitiſh colour. The leaves are of a pleaſant green, and grow on ſhort footſtalks, irregularly on the branches. They are of an oval, ſpear-ſhaped figure, ſerrated at the edges, and many of them are divided at the top into three diſtinct lobes. The flowers have longer footſtalks than the leaves, and come out from the ſides of the young ſhoots with them; inſomuch that the young ſhoots are often garniſhed with them their whole length. The Common Mallow produces not a bad flower, did not its commonneſs render it unnoticed. The flowers of theſe ſpecies ſomewhat reſemble it in ſhape, but by far exceed it both in ſize and ſplendor of colour; and each has a greater variety; inſomuch that though they are termed Red, White, Purple, &c. from the colour of the upper part of the petals, yet the lower part of all of them is very dark, and ſeems to ſhoot out in rays in directions towards the extremity of each petal. Auguſt is the month we may expect to be entertained with this bloom; though in ſtarved cold ſoils, the flowers rarely ever appear before September.

This beautiful ſhrub may be PROPAGATED by two methods. 1. By ſeeds, which we receive from abroad. Theſe ſhould be ſown in a bed of light ſandy earth; and if it is not naturally ſo, drift ſand muſt be added; and if ſome old lime-rubbiſh, beat to powder, be alſo mixed with it, it will be the better. Having worked them all together, and made the bed ſmooth and fine, the ſeeds ſhould be covered about a quarter of an inch deep. The ſituation of this bed muſt be in a warm well-ſheltered place, that the young plants may not ſuffer by froſts the firſt winter. Any time in March will do for the work; and in about ſix weeks the young plants will come up. In the heat of ſummer, it will be proper to ſhade them; and if conſtant waterings are afforded them in dry weather, they will acquire greater ſtrength and vigour by the autumn. At the beginning of November, beſides the natural ſhelter of theſe beds, it will be proper to prick furze-buſhes at a little diſtance all around, to break the keen edge of the black froſts, which otherwiſe would deſtroy many of them the firſt winter: After that, they will be hardy enough for our ſevereſt weather. They ſhould ſtand in theſe ſeed-beds two years,

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and all the while be weeded and watered in dry weather. The ſpring is the beſt time for planting them out in the nurſery, where no more diſtance need be allowed them than one foot. 2. Theſe plants may be propagated by layers; for which purpoſe the ſtools ſhould be headed near the ground, to throw out ſome good ſtrong ſhoots the following ſummer. Theſe ſhould be laid in the ground, the bark being broken, or cut at one or two of the joints, and they will have ſtruck root by the autumn following, when they may be taken up and planted in the nurſery, like the ſeedlings; and a ſecond operation performed on the ſtools. 3. Theſe plants may be raiſed alſo by cuttings; for by planting them in a ſhady border, many of them will grow; though this is not a certain method.

HIPPOPHAE.

LINNEAN Claſs and Order, *Dioecia Tetrandria:* Male flowers containing four ſtamina, and female flowers containing one piſtil, upon diſtinct plants: There are only two SPECIES:

1. HIPPOPHAE *Rhamnoides:* The EUROPEAN SEA-BUCKTHORN; *a tall deciduous ſhrub*; native of the ſea-ſhores of this country and moſt parts of Europe.

2. HIPPOPHAE *Canadenſis:* The AMERICAN SEA-BUCKTHORN; *a tall deciduous ſhrub*; native of Canada.

1. The EUROPEAN SEA-BUCKTHORN will grow to the height of about twelve feet, and ſends forth numerous branches in an irregular manner. Their colour is that of a dark brown; and on them a few ſtrong and long ſharp ſpines are found, nearly like thoſe of the Common Buckthorn. This tree is chiefly admired for its ſingular appearance in winter; for the young ſhoots of the preceding ſummer are then found thickly ſet on all ſides with large, turgid, uneven, ſcaly buds, of a darker brown, or rather a chocolate colour, than the branches themſelves: Theſe give the tree ſuch a particular look, that it catches the attention, and occaſions it to be enquired after, as much as any ſhrub in the plantation.

tation. About the end of February these turgid buds will be much larger; and a little before their opening, upon striking the tree with a stick, a yellow dust, like brimstone, will fall from them. Though some think the beauty of this shrub to be diminished after the leaves are opened, yet these have their good effect; for they are of two colours: Their upper surface is of a dark green, their under hoary; they are long and narrow, entire, have no footstalks, nearly like those of the rosemary, though rather longer and broader; and they are placed alternately all around, without any footstalks, on the branches. They continue on the tree green and hoary late, sometimes until the beginning of December, and at length die away to a light brown. The flowers are of no consequence to any but Nature's strict observers. They are produced in July, by the sides of the young shoots; the male flowers appear in little clusters, but the females come out singly. They are succeeded by berries, which, in the autumn, when ripe, are either of a red or yellow colour, for there are both those sorts.

2. CANADA SEA-BUCKTHORN will grow to about the same height as the other species; nearly the same dark brown bark covers their branches; and, except the figure of their leaves, which are oval, this plant differs in few respects from the European Sea-Buckthorn.

Both these sorts may be PROPAGATED, 1. By cuttings of the young shoots, planted in a shady border, in October; though the most certain method is by layers. If the trees to be encreased are of some years growth, the ground should be dug and made fine, as well as cleared of the roots of bad weeds, &c. all round. The main branches may be plashed, and the young twigs that form the head laid in the ground; taking off their ends with a knife, that they may only just peep. If this work be performed in the autumn, they will be good-rooted plants by the autumn following, when they may be taken off, and either planted in the nursery, or where they are to remain. 2. Both these sorts are subject to spawn, and throw out many suckers, sometimes at a good distance from the plants; so that by this method they propagate themselves.

HYDRANGEA.

LINNEAN Claſs and Order, *Decandria Digynia:* Each flower contains ten males and two females: There is only one SPECIES:

HYDRANGEA *Arboreſcens:* The HYDRANGEA; *a deciduous ſhrub*; native of Virginia.

The HYDRANGEA ſeldom grows to more than a yard or four feet high, and affords as much pleaſure to thoſe who delight in fine flowers as it does to the botaniſt. It forms itſelf into no regular head; but the branches of which it is compoſed ſhoot chiefly from the root. Theſe, when young, are four-cornered and green; when old, of a fine brown colour: They are very large for their height, as well as very full of pith. The leaves are a great ornament to theſe plants; being alſo very large, and having their upper ſurface of a fine green, and their under rather downy. Their figure is nearly ſhaped like a heart, but ends in an acute point; and their ſize will prove according to the nature of the ſoil they grow in. On a dry ſoil, they will often be no more than two inches long, and ſcarcely an inch and a half broad; but, in a moiſt rich ſoil, they will frequently grow to near four inches long, and two and three quarters broad in the wideſt part. They are ſerrated at their edges, and are placed on long footſtalks, oppoſite to each other, on the branches. But the flowers conſtitute the greateſt beauty of theſe plants; for they are produced in very large bunches, in Auguſt: Their colour is white, and the end of every branch will be ornamented with them. They have an agreeable odour, and make ſuch a ſhow all together as to diſtinguiſh themſelves even at a conſiderable diſtance. With us, however, they are ſeldom ſucceeded by any ſeeds.

The PROPAGATION of this plant is more eaſy than to keep it within bounds; for the roots creep to a conſiderable diſtance, and ſend up ſtalks which produce flowers; ſo that theſe being taken off, will be proper plants for any place. It likes a moiſt ſoil.

HYPERICUM.

LINNEAN Claſs and Order, *Polyadelphia Polyandria:* Each flower contains many males and about three females; the males being joined at the baſe in many ſets: There are forty SPECIES; two of which are proper for ornamental ſhrubberies.

1. HYPERICUM *Hircinum:* The SHRUBBY ST. JOHN'S WORT, or the STINKING or GOAT-SCENTED ST. JOHN'S WORT; *a deciduous ſhrub*; grows naturally by the ſides of rivers in Sicily, Calabria, and Crete.

2. HYPERICUM *Canarienſe:* The CANARY ST. JOHN'S WORT; *a deciduous ſhrub*; native of the Canaries.

1. The SHRUBBY ST. JOHN'S WORT. Of this there are ſeveral *varieties.* The Common is a beautiful ſhrub, near four feet in height. The branches are ſmooth, of a light brown, and come out oppoſite by pairs from the ſide of the ſtrongeſt ſtalks; and theſe alſo ſend forth others, which alternately point out different directions. The leaves are of an oblong, oval figure, grow oppoſite by pairs, and ſit very cloſe to the ſtalks. Theſe being bruiſed, emit a very ſtrong diſagreeable ſcent. The flowers are yellow, and make a good ſhow in June and July; for they will be produced in ſuch cluſters, at the ends of the young ſhoots, that the ſhrub will appear covered with them. They are ſucceeded by oval black-coloured capſules, containing ripe ſeeds, in the autumn.

There is a *variety* of this ſpecies, which will grow to be eight feet high: The ſtalks are ſtrong, the leaves broad, and the flowers large; and being produced in great plenty, cauſes it to be a valuable ſhrub for the plantation. There is another variety with variegated leaves, which is admired by thoſe who are fond of ſuch kinds of plants. There is alſo a variety diſpoſſeſſed of the diſagreeable ſmell, which cauſes it to be preferred by many on that account.

2. The CANARY ST. JOHN'S WORT is a ſhrub of about ſix or ſeven feet high: The branches divide by pairs, and the leaves, which are of an oblong figure, grow oppoſite by pairs, without any footſtalks. The flowers come out in cluſters from the ends of the branches: They are of a bright yellow, have

numerous ſtamina, which are ſhorter than the petals, and three ſtyles. They appear in July and Auguſt, and are ſucceeded by oval roundiſh capſules, containing the ſeeds.

No art need be uſed in PROPAGATING theſe ſhrubs; for, 1. Having obtained a plant or two of each, they will afford encreaſe enough by ſuckers. Having ſtood about three years, the whole of each plant ſhould be taken up, and the ſuckers and ſlips with roots that this may be divided into, may reaſonably be ſuppoſed to be twenty in number. The ſtrongeſt of theſe may be planted where they are to remain, while the weaker may be ſet out in the nurſery to gain ſtrength. 2. Theſe ſhrubs may alſo be propagated by ſeeds, which ripen well with us, and will come up with common care; nay, they will often ſhed their ſeeds, which will come up without ſowing, eſpecially the laſt ſort.

JASMINUM.

LINNEAN Claſs and Order, *Diandria Monogynia:* Each flower contains two males and one female: There are ſix SPECIES; three of which are hardy enough for our purpoſe.

1. JASMINUM *Officinale:* The COMMON WHITE JASMINE; *a deciduous ſhrub or climber*; native of India.

2. JASMINUM *Fruticans:* The COMMON YELLOW JASMINE; *a deciduous ſhrub or climber*; native of the South of Europe, and of the Eaſt.

3. JASMINUM *Humile:* The ITALIAN JASMINE; *a deciduous ſhrub or climber*; native of Italy.

1. The COMMON WHITE JASMINES have uſually been planted againſt walls, &c. for the branches being ſlender, weak, and pithy, by ſuch aſſiſtance they have arrived to a good height; though this ſhrub is not the moſt eligible for that purpoſe, as its branches, which are numerous, are covered with a brown dirty-looking bark, and afford ſhelter for ſnails, ſpiders, and other inſects, which in winter, when the leaves are fallen, will

give

give them an unſightly look; and if they are clipped and kept up to the wall, as the flowers are produced from the ends and wings of the ſhoots, theſe muſt of courſe be ſheared off; ſo that little bloom will be found, except what is at the top of the tree. It is not meant, however, to diſſuade thoſe people who are fond of it from planting it againſt walls: It naturally requires ſupport, though attended with thoſe defects. It may nevertheleſs be planted among ſhrubs in the ſhrubbery, to appear to great advantage. It ſhould keep company with the lower kinds of ſhrubs; and whenever the branches grow too high to ſuſtain themſelves without nodding, and diſcover their ruſty ſtems, theſe ſhould be taken off from the bottom. There will always be a ſucceſſion of young wood; and theſe young ſhoots, which are covered with a ſmooth bark, of a delightful green colour, alſo exhibit the leaves and bloom. The leaves are pinnated, and very beautiful: They grow oppoſite by pairs; and the folioles are uſually three pair in number, beſides the odd one with which each leaf is terminated. They are all of a dark ſtrong green colour, are pointed, and the end one is generally the largeſt, and has its point drawn out to a greater length. The flowers are produced from the ends and joints of the branches, during moſt of the ſummer months: They are white, and very fragrant; but are ſucceeded by no fruit in England.

There is a *variety* of this ſort with yellow, and another with white ſtriped leaves.

2. The YELLOW JASMINE is often planted againſt walls, pales, &c. as the branches are weak and ſlender; and it will grow to be ten or twelve feet high, if thus ſupported. It may, however, be planted in ſhrubbery-quarters, in the ſame manner as the other. The young ſhoots are of a fine ſtrong green colour, angular, and a little hairy. The leaves are trifoliate, though ſometimes they grow ſingly: They are placed alternately on the branches, are of a thick conſiſtence, ſmooth, and of a fine deep green colour. Theſe leaves, in well-ſheltered places, remain until the ſpring before they fall off; ſo that this plant may not improperly be ranked among evergreens, eſpecially as the young ſhoots are always of a ſtrong green. The flowers are yellow, and do not poſſeſs the fragrance of the preceding ſpecies: They are produced in June, and the blow is ſoon over; but they are ſucceeded by berries, which, when ripe, are black.

Theſe have occaſioned this ſort to be called by ſome perſons the Berry-bearing Jaſmine.

3. The ITALIAN JASMINE is, of all the ſorts, beſt adapted to a ſhrubbery, becauſe it loſes part of its beauty if nailed to a wall. It is naturally of lower growth, and the branches are ſtronger, fewer in number, able to ſupport themſelves in an upright poſition, and are angular. The bark is ſmooth, and of a fine deep green colour. The leaves grow alternately: They are chiefly trifoliate, though ſome pinnated ones are found upon this ſhrub. The folioles are ſmooth, and of a fine ſtrong green: They are much broader than the preceding ſorts, and often continue till ſpring before they drop off; ſo that this ſhrub, on account of the beautiful green colour of the young ſhoots, might have a place among evergreens. The flowers are yellow, and much larger than thoſe of the other ſorts: They are produced in July, and are ſometimes ſucceeded by berries; but theſe ſeldom if ever come to perfection. This ſpecies is very hardy, and has grown in the moſt expoſed places, reſiſting the ſevereſt froſts for many years.

Little need be ſaid concerning the PROPAGATION of theſe plants; for they will all grow by layers or cuttings; ſo that if either way be purſued in the winter, you will have plenty of plants by the autumn following. The cuttings, however, muſt have a moiſt good ſoil, and ſhould be ſhaded and watered as the hot weather comes on, the beginning of ſummer. The Common Yellow Jaſmine may be propagated by the ſeeds; but it naturally ſends forth ſuch plenty of ſuckers as to render it needleſs to take any other method for its encreaſe; for theſe being taken off, will be good plants; nay, if it is planted in borders, they muſt be annually taken for uſe, or thrown away, or they will overſpread every thing that grows near them. The Yellow and White ſtriped-leaved Jaſmines are propagated by grafting, budding, or inarching, into ſtocks of the Common White: They are rather tender, eſpecially the White, therefore muſt have a warm ſituation. The Yellow-ſtriped is the moſt common and leaſt beautiful, and may be encreaſed by layers and cuttings, like the plain ſort.

ILEX.

LINNEAN Claſs and Order, *Tetrandria Tetragynia:* Each flower contains four males and four females: There are three SPECIES; one of Europe, one of Aſia, and one of America: the laſt has been introduced into our gardens and ſhrubberies, making with our own Holly two ſpecies.

1. ILEX *Aquifolium:* The COMMON HOLLY, or the EUROPEAN HOLLY; a well known *evergreen tree or ſhrub*; native of moſt parts of Europe, particularly of England.

2. ILEX *Caſſine:* The AMERICAN HOLLY, or the DOHOON HOLLY; *an evergreen tree or ſhrub*; native of Carolina.

1. The EUROPEAN or COMMON HOLLY will grow to thirty or forty feet high, with a proportionable ſtem. In its natural ſoil and ſituation, namely, a high, chalky, marly, or limeſtone loam, the ſtem frequently ſhoots up naked and ſilvery, ſix or eight feet high, ſupporting a cloſe, ſnug, elliptical head: This may be called its tree ſtate. But the Holly, almoſt as frequently, puts on a very different appearance; feathering from the ground and riſing with an irregular, looſe, elegant outline; forming one of the moſt *Ornamental* evergreens which nature has furniſhed us with. What renders it in this point of view peculiarly valuable,—it is not only highly ornamental in ſinglets or groups ſtanding in the open air, but will flouriſh with great beauty under the ſhade and drip of the more lofty deciduous tribes. Beſides, the bluſhing fruit of the Holly renders it moſt ornamental at a time when the face of nature is in a manner diveſted of every other ornament: In this light it is ſuperior to the Box; and, indeed, taken all in all, the Holly is undoubtedly entitled to take rank amongſt the firſt claſs of Ornamentals. In reſpect of *Utility*, the Holly gives place to the Box; except for the purpoſe of hedges, and for this purpoſe it ſtands unrivalled;—but of this under the Article HEDGES. Its wood, however, is in good eſteem among the inlayers and turners; it is the *whiteſt* of all woods; its colour approaching towards that of Ivory.

The

The PROPAGATION of the Holly is principally from ſeeds. EVELYN tells us that young ſeedlings, collected from the woods, and planted in a nurſery, in a few years will make tolerable plants. MILLAR ſays, the ſeeds "never come up the firſt year; but lie in the ground as the Haws do: therefore the berries ſhould be buried in the ground one year, and then taken up and ſown at Michaelmas, upon a bed expoſed only to the morning ſun; the following ſpring the plants will appear."—"In this ſeed-bed, he ſays, the plants may remain two years; and then ſhould be tranſplanted in the autumn, into beds at about ſix inches aſunder, where they may ſtand two years longer, during which time they muſt be conſtantly kept clean from weeds; and if the plants have thriven well, they will be ſtrong enough to tranſplant where they are deſigned to remain; for when they are tranſplanted at that age, there will be leſs danger of their failing, and they will grow to a larger ſize than thoſe which are removed when they are much larger."—He alſo tells us, "the beſt time for removing Hollies is in autumn, eſpecially in dry land; but where the ſoil is cold and moiſt, they may be tranſplanted with great ſafety in the ſpring; if the plants are not too old, or have not ſtood long unremoved; for if they have, it is great odds of their growing when removed." HANBURY differs with MILLAR in regard to ſowing: he thinks the beſt way is to ſow them as ſoon as they are ripe, and then, he ſays, "they will undoubtedly come up the ſpring twelvemonth following."—"However, he adds, if the ſeeds have been buried, let them be taken up in October; and having ſome fine light ſoil for the ſeminary, let them be ſown half an inch deep, and carefully covered from the mice." He recommends, when the ſeedlings are two years old, that "in the ſpring they ſhould be taken out of the beds and planted in the nurſery in rows, a foot aſunder, and two feet diſtance between the rows. Here they may ſtand until they are of a ſufficient ſize to be finally planted out." He follows MILLAR as to the time of tranſplanting; recommending autumn if the land be naturally dry: but if of a moiſt nature, he ſays, "the planter need not be very anxious about the time of the winter in which he makes his plantations of Hollies." It is ſomewhat extraordinary that men, practical as MILLAR and HANBURY

undoubtedly

undoubtedly were, ſhould not have been acquainted with the proper time of removing ſo prevalent and ſo uſeful a plant as the Holly: and it is ſtill more remarkable, that the profeſſional nurſerymen of the preſent day ſhould, in general, be involved in the ſame darkneſs. Spring is the very worſt time for performing this buſineſs; winter and autumn may be ſomewhat more eligible; but SUMMER is of all others the moſt proper ſeaſon for tranſplanting the Holly. At this time of the year, if the plants be young and well rooted, it matters not much how dry the ſoil is; for they will, notwithſtanding, ſucceed with great certainty. MILLAR nevertheleſs is right in ſaying that large Hollies which have not lately been moved are difficult to tranſplant; more eſpecially ſuch as have ſtood in a thicket, or under the ſhade of other trees. If, however, even theſe be taken up with with good roots, together with a large quantity of native mould adhering to them; their heads leſſened by pruning them in the conoidic manner, and be planted during the ſummer months in a well-tempered paſte, agreeably to the directions given under the Article TRANSPLANTING, ſucceſs, though it cannot be inſured, may with great probability be expected. Thus far the Common Holly;—which will be reſumed again under the Article HEDGES.

But beſides the genuine ſpecies, there are of the European Holly almoſt endleſs *varieties*: Millar mentions ſome eight or ten; and Hanbury enumerates upwards of forty! Five of them are ſufficiently diſtinct to merit ſeparate deſcriptions; the reſt, diſtinguiſhed chiefly by the variegation or mottled appearance of their reſpective leaves, would only form a long liſt of uncouth names, wholly unintereſting upon paper, how elegant ſoever they themſelves may appear in a group of Evergreens.

The Smooth-leaved Holly.
The Green-leaved Yellow-berried Holly.
The Box-leaved Holly.
The Hedge-Hog Holly.
The Saw-leaved Holly.

The *Smooth-leaved Holly* reſembles in general appearance the Common ſort. Of the two it ſeems to be the ſtrongeſt ſhooter, and bids fair for the largeſt growing tree. The leaves are nearly oval, and moſt of them are entirely free from prickles, only they end

end in acute points. This ſort is commonly called the Carolina Smooth-leaved Holly: But it is a native of England, and is found growing amongſt the others in many parts.

The *Green-leaved Yellow-berried Holly* differs in no reſpect from the Common Holly, only the berries are yellow; and as this tree produces berries in plenty, which are thought by moſt people to be uncommon and curious, this ſort, on their account, is deſerving of a place, either in ſmall or large gardens, in ſhrubbery-quarters, or plantations of any kind.

The *Box-leaved Holly* has but little claim to be ſo called; for though ſome of the leaves be ſmall, pretty free from prickles, and nearly oval, yet there will be ſo many nearly as prickly as the Common Holly as to merit no claim to that appellation. The leaves, however, are ſmall; and by them, on that account, the chief variety is occaſioned.

The *Hedge-Hog Holly* has the borders of the leaves armed with ſtrong thorns, and the ſurface beſet with acute prickles, a little reſembling thoſe of an hedge-hog, which gave occaſion to this ſort being ſo called by the Gardeners. This, together with the Striped ſorts of it, is juſtly ranked among our Hollies of the firſt rate.

The *Saw-leaved Holly* is a kind very different from any of the other ſorts. The leaves are of the ordinary length, but very narrow, and of a thick ſubſtance. Their edges are formed into the likeneſs of a ſaw; though they are not very ſharp and prickly. This is a very ſcarce and valuable Holly, and is by all admired.

Theſe ſix ſorts of themſelves form a Collection truly valuable to our evergreen ornamental plantations: if the variegated ſorts are alſo to have a place, which they may properly enough, we introduce then a freſh Collection, which for variety and beauty far exceeds not only the variegated ſorts belonging to any one genus, but perhaps all the variegated ſorts of trees and ſhrubs put together.

But let us proceed to the CULTURE of theſe ſorts. We have already ſhewn how the Common Engliſh Holly may be raiſed from the berry. That method is to be practiſed, and plenty of that ſort may be raiſed. Theſe are to be ſtocks, on which

which the others are to be budded or grafted: for though they will take by layers, yet plants raiſed that way are of little or no value; and if the berries of the variegated ſorts be ſown, the plants will come up plain, and be our Common Engliſh Holly (tho' from Hedge-Hog berries plants of the Hedge-Hog Holly are frequently raiſed). By grafting or budding, then, theſe ſorts muſt be propagated; and for this purpoſe young ſtocks muſt be raiſed of the Common Holly, as has been already directed. After theſe have ſtood two years in the ſeed-bed, they ſhould be taken up, have their roots ſhortened, and be planted out in the nurſery, a foot aſunder, in rows at two feet diſtance. The ſummer following they will probably make few ſhoots; but the ſummer after that, they will ſhoot ſtrongly; and when the operation is to be performed by grafting, theſe will be proper ſtocks for the purpoſe by the ſpring following. The firſt week in March is a good time for the work. Whip-grafting is the method to be practiſed; and it muſt be performed on the young wood, namely, on that of the preceding ſummer's ſhoot. The cions being cut true and even, and well jointed to the ſtock, many of them will grow; and this is a very good method of encreaſing theſe trees. They may alſo be multiplied at pleaſure by inoculation. This operation is beſt performed about ten days after Midſummer, in cloudy weather; and for want of this, evening ſhould be the time: and if much work is to be done, morning too may be added; nay, it may be practiſed all day in the hotteſt ſeaſons, with tolerable ſucceſs; but this is never ſo eligible, unleſs when the multiplicity of work obliges us to loſe no time. The young wood of the preceding ſummer's ſhoot is proper for the purpoſe; and the operation is to be performed in the uſual way. In the autumn the bands ſhould be looſed, and in the ſpring the ſtocks dreſſed up, and headed two or three inches above the bud; the buds will be as early in ſhooting out as any of the ſhoots of the growing trees, and will ſoon become good plants for any place.

2. The Dohoon Holly is an American plant, particularly of Carolina, where it grows to be nearly as large a tree as our Holly does with us. It naturally riſes with an upright ſtem, which is covered with a brown bark, and this affords plenty of younger branches, whoſe bark is green and very ſmooth. The leaves are pretty large, and of an oval lanceolated figure; they are of a thickiſh

thickiſh compoſition, of a fine green, and grow alternately on the branches. Their edges are ſerrated, though altogether different from the Common Sawed Holly, their ſerratures towards the upper end of the leaf being ſmall and ſharp. The leaf, on the whole, is of a fine compoſition, and grows on ſhort footſtalks on the branches. The flowers are ſmall and white, and a little reſemble thoſe of the Common Holly. They are produced from the ſides of the branches, in ſhort thick cluſters; and are in their native climate ſucceeded by red berries, equalling thoſe of our Common ſort in beauty.

The Dohoon Holly may be PROPAGATED by ſeeds, which we receive from the countries where it grows naturally; for the berries will not ripen, and indeed are very ſeldom produced, in England. The beſt way is to ſow them in pots filled with light ſandy earth, as ſoon as they arrive, and then plunge them up to the rims in the natural mould, where they may remain until the ſpring following; for they rarely ever come up the firſt ſummer. The ſpring after that the plants will appear; and if they have then the aſſiſtance of a hotbed, it will greatly help them forward. They muſt be uſed to the open air ſoon. The pots muſt be taken up and plunged in a ſhady place, and in October they ſhould be removed into the greenhouſe for the winter. In the ſpring the plants in the pots may be thinned by drawing out the ſtrongeſt; and thoſe thus drawn ſhould be planted each in a ſeparate pot, and muſt be ſet forward with a hotbed as before. The others, alſo, may be taken out at two or three years growth, planted in pots, and aſſiſted in the ſame manner. Every October they ſhould be removed into the greenhouſe, ſet out in the ſpring, and treated as greenhouſe-plants, until they are at leaſt five or ſix years old; for before then they will be hardly woody enough to venture the planting them out to ſtand. The latter end of March, when the danger of bad weather is chiefly over, is the beſt time for the purpoſe; and if they have a dry ſoil and a warm ſituation, they will bear the cold of our common winters; though if a very ſevere winter ſhould happen before they are got very ſtrong and woody, it is more than probable that all of them will be deſtroyed.

ITEA.

LINNEAN Claſs and Order, *Pentandria Monogynia:* Each flower contains five males and one female: There is only one SPECIES:

ITEA *Virginica:* The ITEA; *a deciduous ſhrub*; native of Virginia.

The ITEA is a plant of about five or ſix feet in height. The branches are numerous, and are produced irregularly all round. The leaves with which they are ornamented are of a fine green colour, gentle ſerratures poſſeſs their edges, their figure is that of a ſpear, and they grow alternately on the twigs. But the flowers conſtitute the greateſt beauty of theſe ſhrubs; for they are produced in July, at the ends of the young ſhoots, in large erect ſpikes: Their colour is white; and as moſt of the branches will be terminated by them, the tree itſelf appears at a diſtance like one large bunch of white flowers: So delightful is the variety which Nature furniſhes for our contemplation and pleaſure.

The PROPAGATION of this beautiful ſhrub is not very eaſy; though it may be propagated by ſeeds and layers. 1. We receive the ſeeds from abroad. They ſhould be ſown in pots or boxes of fine loamy earth, mixed with drift or ſea ſand; and theſe ſhould be plunged up to the brim in the moiſteſt part of the garden, where they may remain till the ſpring after; for the ſeeds ſeldom come up the firſt year. In March, therefore, the pots ſhould be taken up, and plunged into an hotbed, which will promote the growth of the ſeeds, and make them become ſtronger by the autumn. After the heat of the bed is over, they may be put in the ſame moiſt places again. The plants ought to be conſtantly weeded and watered; and in the autumn ſhould be removed into the greenhouſe, or placed under an hot-bed-frame, to be protected in ſevere weather. This care ſhould be continued through the next winter alſo. In the ſpring, a damp day being made choice of, and a moiſt part of the nurſery being well prepared, they ſhould be taken out of the pots or boxes, and planted at about a foot aſunder, which will be

diſtance

diſtance enough for their ſtanding two or three years, when they will be of a ſufficient ſize to be finally planted out. 2. Theſe trees are alſo propagated by layers; for which purpoſe, ſome of them ſhould be planted for ſtools in a moiſt rich ſoil. The young ſhoots of the preceding ſummer ſhould be laid in the ground in the autumn; and in order to make them ſtrike root, a little wire ſhould be twiſted pretty cloſe round the bud, where the root is deſired to be: This wire impeding the motion of the ſap the ſucceeding ſummer, will occaſion them to ſwell in thoſe parts, and ſtrike root. There are other methods by which the operation may be performed; but this has been found the moſt expeditious and ſureſt.

JUGLANS.

LINNEAN Claſs and Order, *Monoecia Polyandria:* Male flowers containing many ſtamina, and female flowers containing two piſtils, upon the ſame plant; the males being collected in oblong catkins, the females ſitting in cluſters cloſe to the branches: There are five SPECIES, four of which are ſufficiently hardy for this climate.

1. JUGLANS *Regia:* The COMMON WALNUT; *a deciduous tree*; whoſe native country is uncertain.

2. JUGLANS *Nigra:* The BLACK VIRGINIA WALNUT; *a deciduous tree*; native of Virginia, Carolina, and Maryland.

3. JUGLANS *Alba:* he HICKERY-NUT, or WHITE VIRGINIA WALNUT; *a low deciduous tree*; native of Virginia.

4. JUGLANS *Cinerea:* The PENNSYLVANIA WALNUT; *a low deciduous tree*; native of Pennſylvania and other parts of North-America.

1. The WALNUT-TREE. This as a fruit-tree is univerſally known. We ſometimes ſee it riſe to a conſiderable height, and grow to great ſize; in general, however, it does not riſe higher than fortyfeet; ſpreading out into a globular inelegant head; this added to the late ſeaſon at which it puts forth its leaves, and the ſtiff uncouth appearance it takes after their fall, renders it of low value as an *Ornamental*; unleſs indeed its general

general appearance be heightened, by the imagination, with the idea of *Utility*. In this point of view, whether we conſider its fruit, or the timber it produces, the Walnut ranks high, and is no doubt an object of notice to the planter. We are far, however, from being ſuch enthuſiaſts to the Walnut as EVELYN was: indeed its uſes as a timber are greatly leſſened ſince his day: Mahogany has ſuperſeded it in the more elegant kinds of furniture; and the Beech, being raiſed at leſs expence, and, from the cleanneſs of its texture, being worked with leſs trouble, has been found more eligible for the commoner ſorts; chairs more eſpecially. Nevertheleſs, the Walnut is ſtill a uſeful wood: it takes a fine poliſh, and is in good eſteem among the cabinet-makers, turners, and gunſmiths. Were the importation of Mahogany to be obſtructed, the Walnut it is probable would become a very valuable wood.

The method of PROPAGATING the Walnut is from ſeeds: EVELYN recommends the Black Virginia ſort for timber; and ſays the nuts ſhould be kept in the huſks, or ſhucks, until March; when they ſhould be planted in the huſks; for, he ſays, "the extreme bitterneſs thereof is moſt exitial and deadly to the worm; or it were good to ſtrew ſome furzes, broken or chopt ſmall, under the ground among them, to preſerve them from mice and rats when their ſhells begin to wax tender." He recommends their being planted in the place where they are to abide; the Walnut being very impatient of tranſplanting. If, however, it be neceſſary to remove the plants, he cautions us not to touch the head with the knife; nor even the tap-root, except when very young. Speaking of experienced huſbandmen, he ſays, "what they hint of putting a tile-ſhard under the nut, when firſt ſet, to divaricate, and ſpread the roots (which are otherwiſe apt to penetrate very deep) I like well enough." And from the ſame ſource he was informed, "that if they be tranſplanted as big as one's middle, it may be done ſafer than when young:" he adds, however, "I do only report it." MILLAR alſo recommends the Black Virginia ſort for timber, which he ſays "is much more inclinable to grow upright than the Common ſort; and the wood being generally of a more beautiful grain, renders it preferable to that, and better worth cultivating." "I have ſeen ſome of this wood," continues he, "which hath been beautifully veined with black and white,

which when poliſhed has appeared at a diſtance like veined marble." The nuts, he ſays, ſhould be kept in the huſks till February, the proper time of ſowing. If the trees be intended for timber, the nuts ſhould be planted where they are to remain; but if for fruit, in a ſeed-bed; becauſe tranſplantation checks their upward growth, and renders them more fruitful. For timber, "they ſhould be planted in lines at a diſtance you intend them to remain; but in the rows they may be placed pretty cloſe, for fear the nuts ſhould miſcarry; and the young trees where they are too thick may be removed, after they have grown two or three years, leaving the remainder at the diſtance they are to ſtand." He alſo cautions againſt too free a uſe of the pruning-knife, either to the roots or the branches; but when there is a neceſſity, he ſays, of cutting any of their branches, "it ſhould be done early in September."—He adds, "The beſt ſeaſon for tranſplanting theſe trees is as ſoon as the leaves begin to decay, at which time, if they are carefully taken up, and their branches preſerved entire, there will be little danger of their ſucceeding, although they are eight or ten years old; though theſe trees will not grow ſo large or continue ſo long as thoſe which are removed young." HANBURY likewiſe follows EVELYN in recommending the Black Virginia Walnut in preference to the Common ſort for timber. His further directions concerning the choice of the ſeed and the method of propagation are as follow: "If the fruit of theſe trees are greatly coveted, the utmoſt care ſhould be taken to gather the nuts from thoſe trees which produce the beſt ſorts; and although the varieties of Walnuts are only ſeminal variations, yet there is the greater chance of having a ſucceſſion of good nuts, if they are gathered from trees that produce good fruit. This maxim holds good in animals: The fineſt breed would degenerate, if attention was not paid to the ſorts for breeding; and the like care muſt be extended throughout the whole ſyſtem of planting, whether for fruit or timber. If for timber, we ſhould be ſolicitous to gather the ſeeds from the healthieſt, the moſt luxuriant and thriving young trees: If for fruit, from thoſe which produce the richeſt and beſt kinds. Having marked the trees that produce the fineſt nuts, either for thinneſs of ſhell or goodneſs of taſte, when they have begun to fall they will be ripe enough for gathering. But as collecting

them

them by the hand would be tedious, they may be beat down by long poles prepared for that purpoſe. Having procured the quantity wanted, let them be preſerved, with their huſks on, in ſand till the beginning of February, which is the time for planting them. This is to be done in the following manner: Let drills be made acroſs the ſeminary, at one foot aſunder, and about two inches and a half deep, and let the nuts be put in theſe at the diſtance of about one foot. In the ſpring the young plants will come up; and here they ſhould continue for two years, being conſtantly kept clear of weeds; when they will be of a proper ſize to plant out in the nurſery. The ground ſhould be prepared, as has been always directed, by double digging; and the trees being taken out of the ſeminary, and having their tap-roots ſhortened, ſhould be planted therein, in rows two feet and a half aſunder, and the plants at a foot and a half diſtance. Here they may remain, with the ſame culture as has been all along directed for the management of timber trees, till they are of a proper ſize for planting out for good. If they are deſigned for ſtandards to be planted in fields, &c. before they are taken out of the nurſery they ſhould be above the reach of cattle, which may otherwiſe wantonly break their leading ſhoots, though they do not care to eat them on account of their extraordinary bitterneſs. They ought likewiſe to be removed with the greateſt caution, and the knife ſhould be very ſparingly applied to the roots. They muſt alſo be planted as ſoon as poſſible after taking up; and this work ſhould be always done ſoon after the fall of the leaf."

Evelyn tells us, that the Walnut-Tree may be propagated "by a branch ſlipped off with ſome of the old wood, and ſet in February;" and in another place, "it is certain they will receive their own cyons being grafted, and that it does improve their fruit."

It is agreed on all hands, that the Walnut requires a dry, ſound, good ſoil, and will make but little progreſs, as a timber tree, in a cold barren ſituation.

2. The Black Virginia Walnut. This is the ſort recommended for timber, and will grow to a large tree. The young ſhoots are ſmooth, and of a greeniſh-brown. The leaves are produced irregularly: They are large and finely pinnated, being compoſed of about eight, ten, twelve, and ſometimes

fourteen pair of ſpear-ſhaped, ſharp-pointed folioles, which are terminated by an odd one, ſawed at the edges, and the bottom pair are always the leaſt. The flowers give pleaſure only to the curious botaniſt. They blow early in the ſpring; and the females are ſucceeded by nuts of different ſizes and ſhapes. The nuts of the Common ſort have a very thick ſhell, incloſing a ſweet kernel. They are furrowed, and of a rounder figure than thoſe of the Common Walnut.

There are many *varieties* of this ſpecies, and nuts of different ſizes, like thoſe of the Common Walnut, will always be the effect of ſeed: Some will be ſmall and round; others oblong, large, and deeply furrowed. You muſt expect alſo to find a variety in the leaves; ſome will have no ſcent, others will be finely perfumed. Hence the names, *Common Virginian Walnut*, *Aromatic Walnut*, *Deeply-furrowed-fruited Walnut*, &c. have been uſed to expreſs the different varieties of this ſpecies.

3. The WHITE VIRGINIAN WALNUT, called the Hickery-Nut, is a tree of lower ſtature, ſeldom riſing more than thirty or thirty-five feet high; though the ſort called the Shag-Bark is the ſtrongeſt ſhooter. The young ſhoots of all are ſmooth. The leaves are alſo pinnated, though ſome of them are ſmall, the number of folioles being from two or three pair to ſix or ſeven, beſides the odd one with which they are terminated. The folioles are of a pleaſant green colour, narroweſt at their baſe, and ſerrated at their edges. The flowers are no ornament; and the nuts are ſmall, hard, and of a white colour.

The *varieties* of this ſpecies go by the various names of *Common Hickery-Nut*, *Small-fruited Hickery-Nut*, *Shag-Bark Hickery-Nut*, &c.

4. PENNSYLVANIA WALNUT. This ſpecies grows to about the height of the former. The leaves are very long, being compoſed of about eleven pair of folioles, beſides the odd one with which they are terminated. The flowers are yellowiſh, come out at the uſual time with the others, and are ſucceeded for the moſt part by ſmall, roundiſh, hard-ſhelled fruit; though the nuts will be of different ſizes in the different varieties.

The method of PROPAGATING theſe trees is from the nuts, which we receive from America, where they grow naturally. Theſe muſt be ſown as ſoon as they arrive, in the manner directed,

rected for raiſing the Common Walnut. Their after-management muſt alſo be the ſame.

JUNIPERUS.

LINNEAN Claſs and Order, *Dioecia Monadelphia :* — Male flowers containing three ſtamina, and female flowers containing three piſtils, ſituated on diſtinct plants. There are ten SPECIES ; nine of them as follow :

1. JUNIPERUS *Communis :* The COMMON JUNIPER ; *an evergreen ſhrub* ; native of England, and of many of the northern parts of Europe.

2. JUNIPERUS *Oxycedrus :* The SPANISH JUNIPER ; *an evergreen ſhrub or tree* ; native of Spain and South of France.

3. JUNIPERUS *Virginiana :* The VIRGINIA CEDAR, or the RED CEDAR ; *an evergreen tree* ; native of Virginia and Carolina.

4. JUNIPERUS *Bermudiana:* The BERMUDIAN CEDAR ; *an evergreen tree* ; native of Bermudas and America.

5. JUNIPERUS *Barbadenſis :* The JAMAICA CEDAR ; *a tall evergreen tree* ; native of Jamaica and other Weſt-India Iſlands.

6. JUNIPERUS *Thurifera :* The SPANISH CEDAR ; *an evergreen tree or ſhrub* ; native of Spain.

7. JUNIPERUS *Lycia :* The LYCIAN CEDAR ; *an evergreen tree or ſhrub* ; native of Spain, Italy and France.

8. JUNIPERUS *Phœnicea :* The PHENICIAN CEDAR ; *an evergreen ſhrub or tree* ; native of Portugal, South of France and the Eaſt.

9. JUNIPERUS *Sabina :* The SAVIN ; *a very low evergreen ſhrub* ; native of Italy, Siberia, Mounts Olympus and Ararat, and of Luſitania.

1. The COMMON JUNIPER. This ſpecies is divided into two *varieties :*

The Engliſh Juniper.
The Swediſh Juniper.

The *Engliſh Juniper* grows common upon the chalky hills about Banſtead and Leatherhead in Surry, where it appears in a low weak ſtate, as if cropped and kept down by the browſing of ſheep, ſeldom riſing higher than two or three feet; but when planted in a good ſoil, it will grow to the height of fifteen or ſixteen feet, and will produce numerous branches from the bottom to the top, forming a large well-looking, buſhy plant. Theſe branches are tough, and covered with a ſmooth bark of a reddiſh colour, with a gentle tinge of purple. The leaves are narrow, and ſharp-pointed: They grow by threes on the branches; their upper ſurface has a greyiſh ſtreak down the middle, but their under is of a fine green colour, and they garniſh the ſhrub in great plenty. This tree flowers in April and May. The flowers are ſmall, of a yellowiſh colour, and make no figure. They are ſucceeded by the berries, which are of a kind of a blueiſh purple when ripe, which will not be before the autumn twelvemonth following.

The *Swediſh Juniper* has a natural tendency to grow to a greater height, and conſequently has more the appearance of a tree than the former ſort; ſixteen or eighteen feet, however, is the higheſt it commonly grows to; and the plants raiſed from its ſeeds have, for the moſt part, a tendency to grow higher, and become more woody and ramoſe. The leaves, flowers, and fruit, grow in the ſame manner, and are of the ſame nature, which ſhews it to be a variety only. Old Botaniſts mention it as a diſtinct ſpecies: Caspar Bauhine aſſerts this, and calls one the Shrubby Juniper, and the other Tree Juniper; and he alſo mentions another ſort, which he calls the Leſſer Mountain Juniper, with a broader leaf and a larger fruit. This is ſtill a variety of the Common Juniper. The leaves, flowers, and fruit, however, are much the ſame; though there may be ſome difference in the ſize of their growth. From what has been ſaid, the Gardener will know, when he meets with them by thoſe different names, where to plant them in ſuitable ſituations. It is obſervable of both theſe ſorts, that in the beginning or middle of May, when they will be in full blow, the farina of the male flowers is diſcharged in ſuch plenty, that upon ſtriking the ſhrub with a ſtick, it will riſe up, in a ſtill air, like a column

of

of white ſmoke, and like that will be wafted with the gentleſt wind, until it is loſt or out of ſight.

2. SPANISH JUNIPER will grow to be rather an higher tree than the Swediſh, in ſome ſoils. It will be feathered from the bottom to the top, if left untouched from the firſt planting, or if not crowded with other trees. The leaves are awl-ſhaped, and finely ſpread open. They are very ſhort, ſharp-pointed, and give the tree a fine look. The flowers are ſucceeded by large reddiſh berries, which are very beautiful when ripe.

3. VIRGINIA CEDAR. This tree is held out by EVELYN and HANBURY as being proper to be planted as a foreſt or timber-tree. It grows to near forty feet high, the branches forming a beautiful cone, and, if left unpruned, the tree will be feathered to the very baſe; conſequently it is highly *ornamental*. And HANBURY ſays, it "is valuable for many excellent and rare *uſes*: It will, he ſays, continue ſound and uncorrupt for many ages, being poſſeſſed of a bitter reſin, which prevents the worms from attacking it. The wood may be converted into utenſils of moſt ſorts, as well as applied to great part of the uſes to which the cypreſs is adapted. It is remarkable, however, for being of a very brittle nature, and is therefore not proper to be introduced into buildings where any great weight is to be lodged. Nevertheleſs, in Virginia and Carolina, where they abound, theſe trees are uſed in ſtructures of all kinds, with this precaution; and the inhabitants prefer the timber to moſt other wood for wainſcoting their rooms, and building of veſſels."

4. BERMUDIAN CEDAR. In the iſland from which this tree takes its name, it grows to a timber ſize; but in this country it is a very tender plant, and requires not only a dry warm ſoil, but open mild winters to make it continue thro' them; ſo that when a perſon is deſirous of having an extenſive collection, then and then only is this ſort to be ſought after; for, when planted abroad, even in the warmeſt quarters, the plants require ſheds to preſerve them from the winter's froſt. It is the wood of the Bermudian Cedar of which pencils are made; alſo drawers of cabinets; and formerly wainſcotting was made of this wood. In the iſland of Bermudas (which is in a manner covered with this tree), as well as upon the Continent of America, ſhips are built of it: its ſcent is peculiarly aromatic; but though agree-

able to moſt people, it is offenſive to ſome; and this may be one reaſon why leſs of this wood has of late years been imported into this country than was formerly.

5. Jamaica Cedar. This, in Jamaica, is a very large timber-tree; but in our climate it is ſtill more delicate than the Cedar of Bermudas; both of which ought to be conſidered as greenhouſe rather than as ſhrubbery plants.

6. Spanish Cedar grows plentifully in the country by whoſe name it is diſtinguiſhed: it is a handſome, regular-growing tree, riſing in a conical form, if the branches are untouched, to the height of thirty or more feet. The leaves are imbricated, and lie over each other four ways; they are acute, and of a fine green colour: From theſe properties only, an idea of a fine tree may be had. The flowers are inſignificant to a common obſerver; but they are ſucceeded by berries which make a good ſhow when ripe; for they are very large, and of a fine black colour, and adorn the young branches in great plenty.

7. Lycian Cedar, alſo common in Spain, will riſe to the height of about twenty-five feet; the branches have naturally an upright poſition, and their bark is of a reddiſh hue. The leaves are every where imbricated, and each is obtuſe and of an oval figure. They reſemble thoſe of the Cypreſs, and are very beautiful. The flowers are ſucceeded by large oval berries, of a brown colour, and will be produced in plenty from the ſides of the younger branches all over the tree.

8. Phenician Cedar ſeldom grows higher than twenty feet, and is a beautiful upright ſort, forming a kind of pyramid, if untouched, from the bottom. It has both ternate and imbricated leaves; the under ones grow by threes, and ſpread open; and the upper ones are obtuſe, and lie over each other like the Cypreſs. The flowers are produced from the ends of the branches; and the fruit that ſucceeds them is rather ſmall, and of a yellow colour. It is commonly called the Phenician Cedar, though it is found growing naturally in moſt of the ſouthern parts of Europe.

9. Savin. Of this ſpecies there are three ſorts:

Spreading Savin,
Upright Savin, and
Striped Savin.

Spreading

Spreading Savin is a low-ſpreading ſhrub; the branches have a natural tendency to grow horizontally, or nearly ſo; ſo that it muſt be ranked amongſt the loweſt growing ſhrubs; inſomuch that unleſs it is planted againſt a wall, or ſupported in an upright poſition, we ſeldom have it higher than two feet. When it is to be planted and left to Nature, room muſt be firſt allowed for its ſpreading; for it will occupy a circle of more than two or three yards diameter, and will choke any other leſs powerful ſhrub that is placed too near it. The bark on the older ſhoots is of a light-brown colour; but the younger, which are covered with leaves running into each other, are of as fine a green as any ſhrub whatever. Theſe leaves are erect, and acute-pointed. They are placed oppoſite, and grow a little like thoſe of the French Tamariſk. This ſhrub ſeldom produces flowers or berries; but when any berries do appear, they are ſmall and of a blueiſh colour. It deſerves a place amongſt low-growing evergreens, on account of the fine ſtrong green of its leaves both in winter and ſummer; but it is valuable for nothing elſe; for it produces neither flowers nor fruit ornamental, and is poſſeſſed of a very ſtrong ſmell; inſomuch that, being ſtirred by whatever runs amongſt it, the whole air is filled with a fœtid ſcent, which is emitted from its branches and leaves, and which to moſt people is diſagreeable. It is in great requeſt with horſe-doctors and cow-leeches, by which they much benefit thoſe creatures in many diſorders. The juice of it, mixed with milk and honey, is ſaid to be good to expel worms from children; as well as, without that mixture, to deſtroy thoſe in horſes, for which purpoſe it is ſtrongly recommended.

Upright Savin is a delightful tree; it will grow to be twelve or fourteen feet high. The branches are numerous and ſlender, and give the tree a genteel air. The leaves are nearly of the ſame nature with the other, though they are of a darker green. The flowers, though produced in plenty, make no ſhow; but they are ſucceeded by berries in ſuch plenty as to cauſe a good effect. The upright tendency of growth of this tree, together with the very dark green of the leaves, which cauſes a good contraſt with others that are lighter, together with its not being poſſeſſed of that ſtrong diſagreeable ſcent of the other ſort, makes it valuable for evergreen plantations.

Variegated

Variegated Savin is a variety of the former; it has not that tendency to ſpread like the Common, neither does it grow quite ſo upright as the Berry-bearing Savin. It is a fine plant, and at preſent rather ſcarce. The ends of ſeveral of the young ſhoots are of a fine cream-colour; nay, all the ſmaller branches appear often of that colour, and at a diſtance will have the appearance of flowers growing on the tree. In ſhort, to thoſe who are fond of variegated plants, this ſhrub has both beauty and ſcarcity to recommend itſelf.

The method of PROPAGATING this genus of plants varies in ſome degree with the reſpective ſpecies.

The Common Juniper,
The Spaniſh Juniper,
The Virginia Cedar,
The Spaniſh Cedar,
The Lycian Cedar, and
The Phenician Cedar,

are raiſed from ſeeds procured from the reſpective places of their growth, and ſown the latter end of February or the beginning of March, in beds of light ſandy earth, about half an inch deep. In about twelve months after ſowing the plants will appear. Having ſtood two years in the ſeed-bed, they may be removed to the nurſery, planting them from one to two feet diſtance in the rows, with two-feet intervals; and here they may remain until wanted for uſe. They may be tranſplanted either in autumn or in ſpring, care being had to perform the removal in moiſt weather, preſerving as much mould as poſſible amongſt the fibres. HANBURY recommends that the ſeeds of the COMMON JUNIPER be ſown as ſoon as poſſible after they are ripe; for if this precaution, he ſays, is obſerved, they will come up the ſpring following; whereas if they are neglected till the ſpring, they will not appear till the ſpring after that; and ſometimes a great part of them will remain till the ſecond and even third ſeaſon before they come up. The COMMON JUNIPER may alſo be increaſed by layers.

The Bermudian Cedar, and
The Jamaica Cedar,

require

require that the ſeeds be ſown in pots; that the young ſeedlings be planted out into ſeparate pots; and that theſe be always houſed in the winter.

The COMMON SAVIN is to be increaſed by ſlips, which if planted almoſt at any time, or any how, will grow. The Upright Savin alſo is to be encreaſed by ſlips planted in moiſt weather, in Auguſt, and kept ſhaded and watered in dry weather afterwards. This is the beſt way of treating cuttings of the Upright Savin, though they will often grow if planted at any time, either in winter or ſummer. The Striped Savin alſo is to be encreaſed this way; though care muſt be always uſed to take off thoſe branches that are moſt beautifully variegated, and ſuch alſo as are entirely of a cream-colour; for this will be the moſt probable method of continuing it in its variegated beauties. This plant is alſo to be raiſed by berries; and if theſe have the ſame treatment as the other ſorts, it will be very proper; and by theſe the moſt upright and beſt plants are raiſed.

KALMIA.

LINNEAN Claſs and Order, *Decandria Monogynia:* Each flower contains ten males and one female: There are two SPECIES:

1. KALMIA *Latifolia:* The BROAD-LEAVED KALMIA; *an evergreen ſhrub*; native of Maryland, Virginia, and Pennſylvania.

2. KALMIA *Anguſtifolia:* The NARROW-LEAVED KALMIA; *an evergreen ſhrub*; native of Pennſylvania and Carolina.

1. The BROAD-LEAVED KALMIA ſeldom riſes to more than four or five feet high; and the branches, which by no means are regularly produced, are hard, and of a greyiſh colour. The leaves are of an oval, ſpear-ſhaped figure, and of a fine ſhining green colour. Their conſiſtence is rather thick in proportion to their footſtalks, which are but ſlender, and grow irregularly on the branches. The flowers are produced at the ends of the

the branches, in roundiſh bunches. They are firſt of a fine deep red, but die away to a paler colour. Each is compoſed of a ſingle petal, which is tubular at the bottom, ſpreading open at the top, and has ten permanent corniculæ ſurrounding them on their outſide. They generally flower with us in July; and are ſucceeded by roundiſh capſules, full of ſeeds, which ſeldom ripen in England. In ſome places this is a fine evergreen; and in others, again, it often loſes its leaves, and that ſometimes before the winter is far advanced.

2, The NARROW-LEAVED KALMIA is rather of lower growth than the other, and the branches are more weak and tough. The leaves are very beautiful, being of a fine ſhining green; they are of a lanceolate figure, and in all reſpects are ſmaller than thoſe of the former ſort, and ſtand upon very ſhort foot-ſtalks. They are produced in no certain regular manner, being ſometimes by pairs, at other times in bunches, growing oppoſite at the joints. The flowers are produced from the ſides of the branches in roundiſh bunches; they are of a fine red colour, and each is compoſed of one petal, that has the property of ſpreading open like the former. They flower in July, and are very beautiful; but are not ſucceeded by ripe ſeeds with us.

Both theſe ſorts are to be PROPAGATED three ways; by ſeeds, layers, and ſuckers. 1. By ſeeds. Theſe we receive from abroad; and for their reception we ſhould prepare a compoſt, conſiſting of half freſh ſoil from a rich paſture, taken from thence a year before, and half drift or ſea ſand: theſe being well mixed, will be proper for the reception of the ſeeds, which ſhould be ſown in pots or boxes, half an inch deep. As ſoon as they are ſown, they ſhould be removed into a ſhady place, to remain until the ſpring following, and all this time nothing but weeding will be wanted; for they ſeldom if ever come up the firſt ſummer. About the beginning of March it will be proper to plunge theſe pots into an hotbed, and this will fetch the plants up, and make them grow ſtrong. They muſt be hardened by degrees to the air, and then ſet in a ſhady place. Watering muſt be now and then given them, if the ſeaſon proves dry; and at the approach of winter they may be removed into the greenhouſe, or ſet under an hotbed-frame, but ſhould always have the free air in open weather. In theſe pots or boxes they ſhould remain until

they

they are two-years-old ſeedlings; when they ſhould be ſhaken out, and planted in a ſeparate pot. They ſhould then be forced, by plunging the pots into an hotbed. Afterwards, they may be removed into the ſhade; and if they are kept growing in the pots, and removed under ſhelter in hard weather for a year or two, they may be afterwards planted out finally. 2. Theſe ſhrubs are propagated by layering. It ſhould be done in the autumn; and the young wood of the preceding ſummer's ſhoot is proper for the purpoſe. If the ſoil is free and light, they will ſtrike root pretty readily; though we muſt ſometimes wait two years before we find any: But by this way the ſtrongeſt plants are obtained in the leaſt time. 3. They are alſo encreaſed by ſuckers; for if the ſoil be light and fine, and is what agrees with them, after ſtanding a few years, they naturally ſend out ſuckers in plenty. Theſe ſhould be taken off in the ſpring: and thoſe with bad roots ſhould be ſet in pots, and plunged into an hotbed, to make them grow.

L A V A T E R A.

LINNEAN Claſs and Order, *Monadelphia Polyandria:* Each flower contains many males and many females; the males being joined together at the baſe: There are nine SPECIES; four of which are cultivated in our open grounds:

1. LAVATERA *Arborea:* The COMMON LAVATERA, or MALLOW-TREE; *a deciduous ſhrub*; native of Italy.

2. LAVATERA *Triloba:* The THREE-LOBED LAVATERA, or MALLOW-TREE; *a deciduous ſhrub*; native of Spain.

3. LAVATERA *Olbia:* The FIVE-LOBED LAVATERA, or MALLOW-TREE; *a deciduous ſhrub*; native of the South of France.

4. LAVATERA *Micans:* or the GLITTERING LAVATERA; or the SHINING-LEAVED MALLOW-TREE; *a deciduous ſhrub*; native of Spain and Portugal.

1. The COMMON LAVATERA is a well-known plant: It uſually grows to eight or ten feet high, and in a rich ſoil will grow

grow to twelve, or more. The ſtem is thick and ſtrong, and divides near the top into ſeveral branches, which are cloſely ornamented with large downy leaves; they are ſoft to the touch, plaited, and their edges are cut into many angles. The flowers are produced in cluſters, from the wings of the leaves, in June, and there will be a ſucceſſion of them until late in the autumn. Each flower has its ſeparate footſtalk: Their colour is purple; their ſhape like that of the Common Mallow; and they would make a great ſhow, were they not much obſcured by the largeneſs of the leaves. The whole tree has a noble look; and its continuing for about three months in flower makes it very valuable. But tho' its ſhort-lived continuance is much to be regretted, yet Nature ſeems to have made ſome amends for this, by furniſhing it with good ſeeds in very great plenty; for by theſe thouſands of plants may be ſoon raiſed; nay, they will ſometimes ſhed themſelves, and come up without any art. But when they are to be regularly ſown, let it be done in April, in the places where they are deſigned to remain, and they will flower the ſummer after. Tho' this plant is called a biennial, in ſome warm dry ſituations the ſtalks become hard and woody, and the plants will continue to produce flowers and ſeeds for many years.

There are ſeveral *varieties* of this ſpecies; the leaves of ſome being round and indented, others acutely cut, others waved: Theſe among old gardeners go by the names of the *Round-leaved*, *Waved-leaved Mallow-Tree*, &c.

2. The THREE-LOBED LAVATERA. This ſpecies is very ornamental in the front, or among the low ſhrubs in the wilderneſs-quarters, or when ſtationed in large borders in pleaſure-grounds, as it is naturally of low growth, ſeldom riſing to above four or five feet high. It has rather a large ſpreading root, in proportion to the ſize of the ſhrub. The branches are numerous, and of a paliſh green colour; and the leaves are of different figures, though chiefly trilobate, or compoſed of three lobes, that are indented on their edges. They vary much in their ſize, ſome being larger, ſome ſmaller, and ſome more divided than others. Their colour, when the plant is in perfect health, is a very pleaſant green; but they will often ſhew themſelves a little variegated; at which time you may be aſſured the ſhrub is in a ſickly ſtate. This often does not continue long, and the plant will

aſſume

aſſume its former verdure, and as frequently and very ſpeedily relapſe into its weak ſtate; which ſhews that, though hardy with reſpect to cold, it is rather of a ſickly nature in this country. The flowers are produced ſingly, on ſhort footſtalks: They grow from the joints, at the boſoms of the leaves; three or four of them will appear at each joint; and being large, they make a fine ſhow in Auguſt, the time of flowering.

There are *varieties* of this ſpecies, differing in the ſhape of the leaves and ſize of the flowers, which ſtill have names among old botaniſts.

3. The FIVE-LOBED LAVATERA is a diſtinct ſpecies from the preceding, though it differs little from it, except in the nature of the leaves, each of which is compoſed of five lobes, that are haſtated, or pointed like a ſpear, and in the flowers of this ſhrub being ſmaller. They will be in full blow in Auguſt, and there will often be a ſucceſſion of them till the early froſts advance. The leaves of this ſpecies vary: Some are ſhaped like Briony; others are nearly round; and the lobes of others are very acute. Hence the names Briony-leaved, Round-leaved, Acute-leaved Mallow-Tree, &c. have been uſed to expreſs them.

4. GLITTERING LAVATERA grows to about the height of the former. The leaves are large, ſeptangular, plaited, downy, white, and gliſten towards the ſun. The flowers are produced in bunches, from the ends of the branches: They are ſhaped like thoſe of the Common Mallow, come out in July, and continue in ſucceſſion until the end of autumn.

The *varieties* of this ſpecies go by the names of *Waved-leaved*, the *Common Spaniſh*, the *Sulphur-leaved Mallow-Tree*, &c. Theſe three ſorts are eaſily PROPAGATED by cuttings, which ſhould be planted, early in the ſpring, in a ſhady border of ligh rich earth. Many of them will grow; and the plants may ſtand two or three years before they are removed to the places where they are deſigned to remain.

The beſt method of PROPAGATING all the ſorts is by ſeeds; and by this way freſh varieties may be obtained. The ſeeds ſhould be procured from Spain, where the plants naturally grow; for none, except the firſt ſort, ripen well here. Having got a ſufficient quantity, ſow them in a border of light, fine, rich earth, about the middle of March. They will eaſily come up,

and

and nothing but weeding and watering in dry weather will be required until the ſpring after: when they ſhould be planted in nurſery-lines, there to remain until they are ſet out to ſtand. The leaves of all the ſorts continue until the froſts come on; ſo that if an open winter happens, they will continue in verdure the greateſt part of the ſeaſon.

The Lavatera tribe affect a warm ſandy ſituation and ſoil, in which they will ſometimes continue to exhibit their beauties for many years; but in general they are ſhort-lived, continuing only two or three years: this renders them peculiarly eligible to be ſcattered plentifully in a newly made ſhrubbery; they will add warmth to young plants, and will die away themſelves before the ſpaces they occupy will be required by the ſurrounding ſhrubs.

LAURUS.

LINNEAN Claſs and Order, *Enneandria Monogynia:* Each flower contains nine males and one female: There are eleven SPECIES; four of which are adapted to our purpoſe:

1. LAURUS *Nobilis:* The EVERGREEN BAY, or the COMMON BAY; *an evergreen ſhrub or tree*; native of Italy, Greece, and Aſia.

2. LAURUS *Æſtivalis:* The DECIDUOUS BAY; *a tall deciduous ſhrub*; native of ſwampy places, and the ſides of brooks and rivers in Virginia.

3. LAURUS *Benzoin:* The BENZOIN TREE, or BENJAMIN TREE; *a deciduous tree or ſhrub*; native of Virginia and Pennſylvania.

4. LAURUS *Saſſafras:* The SASSAFRAS TREE; *a deciduous tree or ſhrub*; native of Virginia, Carolina and Florida.

1. The EVERGREEN BAY. EVELYN ſays, he has ſeen Bay Trees near thirty feet high and almoſt two feet in diameter; and enumerates the Bay amongſt *uſeful* trees. HANBURY catches at this idea, and tells us in general terms, that "it will grow to thirty

thirty feet in height, with a trunk of two feet in diameter," and, accordingly, he arranges it amongſt his Foreſt Trees: he acknowledges however at the ſame time that the wood is of little value. The Bay is nevertheleſs a fine aromatic and a beautiful evergreen: It is ſaid to be the true *Laurus* or Laurel of the antients, with which they adorned the brows of their ſucceſsful generals. The leaves ſtand cloſe, are about three inches long and two broad; are hard, rigid, and of a deep green colour. The Bay, too, like the Holly, Box, and Laurel, will bear the ſhade and drip of taller trees, and it is upon the whole a very deſirable, as being a very *ornamental*, evergreen. There are ſeveral *varieties:* as, the Broad-leaved Bay, the Narrow-leaved Bay, and the Wave-leaved Bay.

This tree is PROPAGATED by layers, or by the berries. In order to raiſe a quantity of theſe trees by layers, ſome ſtools ſhould be planted for the purpoſe; and after theſe are ſhot about a yard high, the branches muſt be brought down to the ground in the winter, all the preceding ſummer's ſhoots laid on it, and pegged down (being firſt ſlit in the joint), and the leaves taken off, which would otherwiſe be under ground. In one year's time theſe layers will have taken root; and in the ſpring they ſhould be taken up, and planted in the nurſery a foot aſunder, in rows two feet diſtance. After they are planted out, if the weather ſhould prove dry, they muſt be conſtantly watered; for without ſuch care, it is difficult to make this tree grow. After they have taken well to the ground, they will require no farther trouble than keeping them clean from weeds, and digging between the rows each winter, till they are finally planted out. 2. In order to raiſe this tree from the berries, they ought to hang on the trees till about January before they are gathered. A well-ſheltered ſpot of ground for the ſeminary muſt be made choice of; and having the mould ſmooth and fine, they ſhould be ſown ſoon after they are gathered in beds, or drills, rather more than half an inch deep. Towards the cloſe of the ſpring the plants will come up, and during ſummer muſt be duly attended, by watering and weeding. In the winter following, their ſheltered ſituation muſt not be truſted to, to defend them from the froſt: Furze-buſhes, or ſome ſuch things, ought to be ſtuck in rows, between the beds or drills, to guard them from the black froſts. Indeed, without this precaution, if the winter ſhould prove very

froſty, few of the young ſeedlings will be alive in ſpring. During the following ſummer, weeding and watering muſt be obſerved, and the winter after that they ſhould be defended with covering as before; for they will be ſtill in danger of being deſtroyed by ſevere froſts. In the enſuing ſpring, the ſtrongeſt may be taken out of the ſeed-beds, and planted in the nurſery way; though if they have not by that time made good ſhoots, it will be adviſeable to let them remain in their beds till the third ſpring; for a ſmall plant of this kind is with more difficulty made to grow than one which is larger. When they are planted in the nurſery, the diſtance which ſhould be allowed them is the ſame as the layers, a foot aſunder and two feet diſtance in the rows; and this will not be found too cloſe; for notwithſtanding the greateſt care is exerted in planting them in the nurſery, even making choice of rainy and cloudy weather, which muſt always be obſerved in ſetting them out, many of them will be loſt by being tranſplanted. After they are thus planted out in the nurſery, whether layers or ſeedlings, they muſt be ſtill watered in dry weather, kept free from weeds, and the rows dug between every winter. You will even find, that thoſe plants which ſuffer leaſt by being tranſplanted will have met with a check, which they will not recover in two or three years; and till they have acquired new ſtrength they ſhould not be taken from the nurſery; but when they appear to be good ſtiff plants, having the year before made a vigorous ſhoot, they will be then proper plants for planting out where they are to remain. Holes ſhould be got ready for their reception; and as ſoon as the firſt autumnal rains fall, the work ſhould be ſet about, eſpecially if the land be gravelly or dry; but if it be moiſt, the ſpring will do as well. Being now planted at one yard diſtance, they will make a poor progreſs for two or three years more; but after this, when they have overcome all theſe difficulties, they will grow very faſt, and arrive to be good trees in a few years.

Although this tree flouriſhes beſt in old gardens, where the ſoil has been made rich and deep, and loves the ſhade, HANBURY tells us, "it thrives nevertheleſs exceedingly well in our hotteſt gravels and ſands; and, after it has ſurmounted the hardſhips of tranſplanting, will grow in ſuch ſituations extremely faſt, and arrive to a larger bulk."

2. The

2. The DECIDUOUS BAY, in a moiſt rich ſoil, in which it principally delights, will grow to be about ſixteen feet high; but in ſome ſoils, that are poſſeſſed of the oppoſite qualities, it will hardly arrive at half that height. The branches are not very numerous, but they are ſmooth, and of a purpliſh colour, look well in winter, and in ſummer exhibit their leaves of an oval ſpear-ſhaped figure: They are about two or three inches in length, are proportionally broad, and placed oppoſite to each other on the branches. Their upper ſurface is ſmooth, and of a pleaſant green colour, whilſt their under is rough and veined. The flowers are ſmall and white, make no figure, come out from the ſides of the branches in May, and are ſucceeded by large red berries, which never ripen in England: So that, notwithſtanding the leaves in ſummer are very pretty, and the colour of the bark makes a variety in winter, it is principally the ſcarcity of this plant which makes it valuable.

3. The BENZOIN TREE will grow to a much larger ſize than the other, and its branches are rather numerous: They are ſmooth, and of a fine light-green colour. The leaves are oval, acute, near four inches long, and two broad; their upper ſurface is ſmooth, and of a fine light green colour, but their under ſurface is venoſe, and of a whitiſh caſt: When bruiſed, they emit a fine fragrance. The flowers make no figure: They are ſmall and yellowiſh, come out from the ſides of the branches in little cluſters, and are ſucceeded by large blackiſh berries, which never ripen in England.

4. The SASSAFRAS TREE. The wood of the Saſſafras is well known in the ſhops, where it is ſold to be made into tea, being eſteemed an excellent antiſcorbutic and purger of the blood. A decoction of the leaves and bark is alſo ſaid to poſſeſs the ſame virtues, and is drank by many perſons for thoſe purpoſes. This tree will grow to nearly the height of the others, though the branches are not ſo numerous. Its bark is ſmooth, and of a red colour, which beautifully diſtinguiſhes it in winter; whilſt the fine ſhining green of its leaves conſtitutes its greateſt beauty in ſummer. In theſe, indeed, there is a variety, and a very extraordinary one. Some are large, and of an oval figure; others are ſmaller, and of the ſame ſhape; whilſt others, again, are ſo divided into three lobes, as to reſemble the leaves of ſome ſorts of the Fig-tree. Their edges are entire; their

froſty, few of the young ſeedlings will be alive in ſpring. During the following ſummer, weeding and watering muſt be obſerved, and the winter after that they ſhould be defended with covering as before; for they will be ſtill in danger of being deſtroyed by ſevere froſts. In the enſuing ſpring, the ſtrongeſt may be taken out of the ſeed-beds, and planted in the nurſery way; though if they have not by that time made good ſhoots, it will be adviſeable to let them remain in their beds till the third ſpring; for a ſmall plant of this kind is with more difficulty made to grow than one which is larger. When they are planted in the nurſery, the diſtance which ſhould be allowed them is the ſame as the layers, a foot aſunder and two feet diſtance in the rows; and this will not be found too cloſe; for notwithſtanding the greateſt care is exerted in planting them in the nurſery, even making choice of rainy and cloudy weather, which muſt always be obſerved in ſetting them out, many of them will be loſt by being tranſplanted. After they are thus planted out in the nurſery, whether layers or ſeedlings, they muſt be ſtill watered in dry weather, kept free from weeds, and the rows dug between every winter. You will even find, that thoſe plants which ſuffer leaſt by being tranſplanted will have met with a check, which they will not recover in two or three years; and till they have acquired new ſtrength they ſhould not be taken from the nurſery; but when they appear to be good ſtiff plants, having the year before made a vigorous ſhoot, they will be then proper plants for planting out where they are to remain. Holes ſhould be got ready for their reception; and as ſoon as the firſt autumnal rains fall, the work ſhould be ſet about, eſpecially if the land be gravelly or dry; but if it be moiſt, the ſpring will do as well. Being now planted at one yard diſtance, they will make a poor progreſs for two or three years more; but after this, when they have overcome all theſe difficulties, they will grow very faſt, and arrive to be good trees in a few years.

Although this tree flouriſhes beſt in old gardens, where the ſoil has been made rich and deep, and loves the ſhade, HANBURY tells us, "it thrives nevertheleſs exceedingly well in our hotteſt gravels and ſands; and, after it has ſurmounted the hardſhips of tranſplanting, will grow in ſuch ſituations extremely faſt, and arrive to a larger bulk."

2. The

2. The Deciduous Bay, in a moiſt rich ſoil, in which it principally delights, will grow to be about ſixteen feet high; but in ſome ſoils, that are poſſeſſed of the oppoſite qualities, it will hardly arrive at half that height. The branches are not very numerous, but they are ſmooth, and of a purpliſh colour, look well in winter, and in ſummer exhibit their leaves of an oval ſpear-ſhaped figure: They are about two or three inches in length, are proportionally broad, and placed oppoſite to each other on the branches. Their upper ſurface is ſmooth, and of a pleaſant green colour, whilſt their under is rough and veined. The flowers are ſmall and white, make no figure, come out from the ſides of the branches in May, and are ſucceeded by large red berries, which never ripen in England: So that, notwithſtanding the leaves in ſummer are very pretty, and the colour of the bark makes a variety in winter, it is principally the ſcarcity of this plant which makes it valuable.

3. The Benzoin Tree will grow to a much larger ſize than the other, and its branches are rather numerous: They are ſmooth, and of a fine light-green colour. The leaves are oval, acute, near four inches long, and two broad; their upper ſurface is ſmooth, and of a fine light green colour, but their under ſurface is venoſe, and of a whitiſh caſt: When bruiſed, they emit a fine fragrance. The flowers make no figure: They are ſmall and yellowiſh, come out from the ſides of the branches in little cluſters, and are ſucceeded by large blackiſh berries, which never ripen in England.

4. The Sassafras Tree. The wood of the Saſſafras is well known in the ſhops, where it is ſold to be made into tea, being eſteemed an excellent antiſcorbutic and purger of the blood. A decoction of the leaves and bark is alſo ſaid to poſſeſs the ſame virtues, and is drank by many perſons for thoſe purpoſes. This tree will grow to nearly the height of the others, though the branches are not ſo numerous. Its bark is ſmooth, and of a red colour, which beautifully diſtinguiſhes it in winter; whilſt the fine ſhining green of its leaves conſtitutes its greateſt beauty in ſummer. In theſe, indeed, there is a variety, and a very extraordinary one. Some are large, and of an oval figure; others are ſmaller, and of the ſame ſhape; whilſt others, again, are ſo divided into three lobes, as to reſemble the leaves of ſome ſorts of the Fig-tree. Their edges are entire; their

under ſurface is of a whitiſh caſt; their footſtalks are pretty long, placed alternately on the branches, and die to a red colour in the autumn. The flowers are ſmall and yellowiſh: They are produced in cluſters on longiſh pedicles, and are ſucceeded by blackiſh berries, which never ripen in England.

The PROPAGATION of theſe three ſorts of trees may be performed two or three ways, 1. By the ſeeds. Theſe we receive, from the places where the trees grow naturally, in the ſpring. They ſhould be preſerved in ſand; and, as ſoon as they arrive, ſhould be ſown in largiſh pots, an inch deep. The ſoil for their reception ſhould be taken from a rich paſture at leaſt a year before, with the ſward. It ſhould alſo be laid on an heap, and frequently turned, until the ſward is grown rotten, and the whole appears well mixed and fine. If the paſture from whence it was taken near the ſurface is a ſandy loam, this is the beſt compoſt for theſe ſeeds; if not, a ſmall addition of drift or ſea ſand ſhould be added, and well mixed with the other mould. After filling the pots with this ſoil, the ſeeds ſhould be ſown an inch deep; and then they ſhould be plunged into common mould up to the rim. If the ſoil be naturally moiſt, it will keep them cooler, and be better; and if the place be well-ſheltered and ſhaded, it will be better ſtill. Nothing more than weeding, which muſt be conſtantly obſerved during the ſummer, will be neceſſary; and in this ſtation they may remain until the March following; about the middle of which month, having prepared a good hot-bed, the pots ſhould be taken up and plunged therein. Soon after the ſeeds will come up; and when the young plants have ſufficiently received the benefit of this bed, they ſhould be enured by degrees to the open air. Weeding and watering muſt be obſerved during the ſummer; and, at the approach of the cold weather in the autumn, they ſhould be removed under an hot-bed frame, or ſome cover, to be protected from the froſts during the winter. In the ſpring, when this danger is over, they ſhould reſume their firſt ſtation; namely, the pots ſhould be plunged up to the rim, as when the ſeeds were firſt ſown; and if this place be well ſheltered, they may remain there all winter; if not, and ſevere froſts threaten, they ſhould be taken up and placed under cover as before. After they have been thus managed three years from the ſeeds, they

ſhould

ſhould be taken out of the pots with care, and planted in the nurſery-ground, at ſmall diſtances; where they may remain until they are ſtrong enough to be finally ſet out. By ſowing the ſeeds in pots, and aſſiſting them by an hotbed, a year at leaſt is ſaved; for they hardly ever come up, when ſown in a natural border, under two years from the ſeeds; nay, they have been known to remain three, and even ſome plants to come up the fourth year after ſowing; which at once ſhews the preference of the former practice, and ſhould caution all who have not ſuch convenience, not to be too haſty in diſturbing the beds when the ſeeds are ſown in the natural ground; as, eſpecially if they are not well preſerved in mould or ſand, theſe may be ſome years before they appear. Indeed, it is the long time we are in obtaining theſe plants, either by ſeeds, layers, &c. that makes them at preſent ſo very ſcarce amongſt us. 2. Theſe plants may alſo be encreaſed by layers; but very ſlowly; for they will be two, and ſometimes three, or even four years, before they have ſtruck out good roots; though the Benjamin Tree is propagated the faſteſt by this method. The young twigs ſhould be laid in the ground in the autumn; and it will be found that twiſting the wire round the bud, ſo as in ſome degree to ſtop the progreſs of the ſap, and taking away with a knife a little of the bark, is a more effectual method of obtaining good roots ſoon than by the ſlit or twiſting, eſpecially when practiſed on the Saſſafras Tree. 3. Plants of theſe ſorts are likewiſe ſometimes obtained by ſuckers, which they will at all times throw out, and which may be often taken off with pretty good roots; but when they are weak, and with bad roots, they ſhould be planted in pots, and aſſiſted by a moderate heat in a bed: With ſuch management they will be good plants by the autumn, and in the ſpring may be planted out any where. 4. Cuttings of theſe trees, when planted in a good bark-bed, and duly watered, will alſo oftentimes grow. When this method is practiſed, and plants obtained, they muſt be enured by degrees to the open air, till they are hardy enough to be finally planted out.

LIGUSTRUM.

LINNEAN Claſs and Order, *Diandria Monogynia:* Each flower contains two males and one female: There is only one SPECIES:

LIGUSTRUM *Vulgare:* The PRIVET; a well-known *deciduous or evergreen ſhrub*; common in the woods and hedges of many parts of England, and almoſt all Europe.

The PRIVET is diviſible into two *varieties:*

The Deciduous or Common Privet, and
The Evergreen Privet.

The *Deciduous Privet* will grow to the height of about ten or twelve feet. The branches are very numerous, ſlender, and tough; covered with a ſmooth grey bark; and, when broken, emit a ſtrong ſcent. The young twigs are generally produced oppoſite, and alternately of contrary directions on the older branches. The leaves alſo are placed oppoſite by pairs in the ſame manner. They are of an oblong figure, ſmall, ſmooth, of a dark green colour, have a nauſeous diſagreeable taſte, and continue on the trees very late. The flowers are produced in cloſe ſpikes, at the ends of the branches, in May, June, and often in July: They are white, very beautiful, and ſucceeded by black berries, which in the autumn will conſtitute the greateſt beauty of this plant; for they will be all over the tree, at the ends of the branches, in thick cluſters. They are of a jet black; and will thus continue to ornament it in this ſingular manner during the greateſt part of the winter.

The PROPAGATION of the Privet is eaſy; for it may be encreaſed, 1. By the ſeeds; and by this way the ſtrongeſt plants may be obtained. The ſeeds, ſoon after they are ripe, ſhould be ſown in any bed of common garden-mould made fine. They ought to be covered about an inch deep; and all the ſucceeding ſummer ſhould be kept clean of weeds; for the plants never, at leaſt not many of them, come up until the ſpring after. After they are come up, they will require no other care than weeding; and in the ſpring following may be planted in the nurſery-ground, where they will require very little care beſides keeping the weeds down, until they are taken up to plant. 2. Theſe plants

may

may be encreaſed by layers; for the young ſhoots being laid in the ground in the autumn, will by that time twelvemonth have taken good root; the largeſt of which may be planted out to ſtand, and the ſmalleſt ſet in the nurſery, to gain ſtrength. 3. Cuttings, alſo, planted in October, will ſtrike root freely; and if the ſoil is inclined to be moiſt, and is ſhaded, it will be the better for them, eſpecially if the ſucceeding ſummer ſhould prove a dry one. If theſe cuttings are thinly planted, they will require no other removing till they are finally ſet out. If a large quantity is deſired, they may be placed cloſe, within about two or three inches of each other, and then taken up and planted in the nurſery the autumn following, to remain there until they are wanted for the above purpoſe.

The Privet, of all others, will thrive beſt in the ſmoke of great cities; ſo that whoever has a little garden in ſuch places, and is deſirous of having a few plants that look green and healthy, may be gratified in the Privet, becauſe it will flouriſh and look well there. It will alſo grow very well under the ſhade and drip of trees.

The *Evergreen Privet.* This variety has a tendency to grow to be a taller and a ſtronger tree than the common deciduous ſort. The leaves are rather larger, more pointed, of a thicker conſiſtence, of a dark-green colour, and they continue on the ſame plant ſo long as to entitle it to the appellation of Evergreen; though it may often be obſerved to be almoſt deſtitute of leaves early in winter, eſpecially thoſe that were on the ends of the higheſt branches, which are often taken off by the firſt cutting winterly winds. In order to have this tree keep up the credit of an evergreen, it ſhould have a well-ſheltered ſituation; for although it be hardy enough to bear with impunity the ſevereſt cuts of the northern blaſts, on the tops of hills, craggy rocks, &c. yet without ſome ſhelter the leaves are ſeldom preſerved all winter, and with protection it is generally allowed to be an handſome evergreen. As it is a variety of the deciduous ſort, the ſame flowers and fruit may be expected.

It is to be raiſed in the ſame manner, by layers or cuttings; and the ſeeds of this ſort ſometimes produce plants of the like ſort, that retain their leaves.

LIQUIDAMBER.

LINNEAN Claſs and Order, *Monoecia Polyandria:* Male flowers containing many ſtamina, and female flowers containing two piſtils, ſituated upon the ſame plant; the males being collected into long conical looſe katkins, and the females forming a globe ſituated at the baſe of the male ſpike: There are only two SPECIES:

1. LIQUIDAMBER *Styraciflua:* The VIRGINIA LIQUIDAMBER, or the MAPLE-LEAVED LIQUIDAMBER; *a deciduous tree*; native of the rich moiſt parts of Virginia and Mexico.

2. LIQUIDAMBER *Peregrinum:* The CANADA LIQUIDAMBER, or the SPLEENWORT-LEAVED GALE; *a deciduous tree*; native of Canada and Pennſylvania.

1. The VIRGINIA LIQUIDAMBER will ſhoot in a regular manner to thirty or forty feet high, having its young twigs covered with a ſmooth, light-brown bark, while thoſe of the older are of a darker colour. The leaves grow irregularly on the young branches, on long footſtalks: They reſemble thoſe of the Common Maple in figure; the lobes are all ſerrated; and from the baſe of the leaf a ſtrong mid-rib runs to the extremity of each lobe that belongs to it. They are of a lucid green, and emit their odoriferous particles in ſuch plenty as to perfume the circumambient air; nay, the whole tree exſudes ſuch a fragrant tranſparent reſin, as to have given occaſion to its being taken for the Sweet Storax. Theſe trees, therefore, are very proper to be planted ſingly in large opens, that they may amply diſplay their fine pyramidal growth, or to be ſet in places near ſeats, pavilions, &c. The flowers are of a kind of ſaffron colour: They are produced at the ends of the branches the beginning of April, and ſometimes ſooner; and are ſucceeded by large round brown fruit, which looks ſingular, but is thought by many to be no ornament to the tree.

2. CANADA LIQUIDAMBER. The young branches of this ſpecies are ſlender, tough, and hardy. The leaves are oblong, of a deep green colour, hairy underneath, and have indentures

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on their edges alternately, very deep. The flowers come out from the ſides of the branches, like the former; and they are ſucceeded by ſmall roundiſh fruit, which ſeldom ripens in England.

The PROPAGATION of both theſe ſpecies is the ſame, and may be performed by ſeeds or layers; but the firſt method is the beſt. 1. We receive the ſeeds from America in the ſpring. Againſt their arrival a fine bed, in a warm well-ſheltered place, ſhould be prepared. If the ſoil is not naturally good, and inclined to be ſandy, it ſhould be wholly taken out near a foot deep, and the vacancy filled up with earth taken up a year before, from a freſh paſture, with the ſward and all well rotted and mixed by being often turned, and afterwards mixed with a ſixth part of drift or ſea land. A dry day being made choice of, early in March, let the ſeeds be ſown, and the fineſt of this compoſt riddled over them a quarter of an inch deep. When the hot weather in the ſpring comes on, the beds ſhould be ſhaded, and waterings given often, but in very ſmall quantities, only affording them a gentle, nay, a very ſmall ſprinkling at a time. MILLAR ſays, the ſeeds of theſe plants never come up under two years. But, continues HANBURY, with this eaſy management, I hardly ever knew it longer than the end of May before the young plants made their appearance. The plants being come up, ſhading ſhould ſtill be afforded them in the parching ſummer, and a watering every other night; and this will promote their growth, and cauſe them to become ſtronger plants by the autumn. In the autumn, the beds ſhould be hooped to be covered with mats in the ſevere froſts. Theſe mats, however, ſhould always be taken off in open weather; and this is all the management they will require during the firſt winter. The ſucceeding ſummer they will require no other trouble than weeding; though, if it ſhould prove a very dry one, they will find benefit from a little water now and then. By the autumn they will be grown ſtrong enough to reſiſt the cold of the following winter, without demanding the trouble of matting, if the ſituation is well ſheltered; if not, it will be proper to have the hoops prepared, and the matts ready, againſt the black northern froſts, which would endanger at leaſt their loſing their tops. After this, nothing except weeding will be wanted; and in the ſpring following, that is, three years from

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their firſt appearance, they ſhould be taken up (for they ſhould not be removed before, unleſs ſome of the ſtrongeſt plants be drawn out of the bed) and planted in the nurſery, a foot aſunder, and too feet diſtant in the rows. Hoeing the weeds in the rows in the ſummer, and digging them in the winter, is all the trouble they will afterwards occaſion until they are finally planted out. 2. Theſe plants are eaſily encreaſed by layers. The operation muſt be performed in the autumn, on the young ſummer's ſhoots; and the beſt way is by ſlitting them at a joint, as is practiſed for carnations. In a ſtrong dry ſoil, they will be often two years or more before they ſtrike root; though, in a fine light ſoil, they will be found to take freely enough. By this method good plants may be obtained, though it is not ſo eligible as the other, if we have the conveniency of procuring the ſeeds.

LIRIODENDRON.

LINNEAN Claſs and Order, *Polyandria Polygynia:* Each flower contains many males and many females: There are two SPECIES; one of them bearing a tulip-like, the other a lily-like flower; the former is not uncommon in our open grounds:

LIRIODENDRON *Tulipifera:* The TULIP-TREE, or the VIRGINIA TULIP-TREE; *a deciduous tree*; native of moſt parts of America.

The TULIP-TREE. In thoſe parts of America where it grows common, it will arrive to a prodigious bulk, and affords excellent timber for many uſes; particularly, the trunk is frequently hollowed, and made into a canoe ſufficient to carry many people; and for this purpoſe no tree is thought more proper by the inhabitants of thoſe parts. With us, it may be ſtationed among trees of forty feet growth. The trunk is covered with a grey bark. The branches, which are not very numerous, of the two-years-old wood, are ſmooth and brown; whilſt the bark of the ſummer's ſhoots is ſmoother and ſhining, and of a blueiſh colour. They

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are very pithy. Their young wood is green, and when broken emits a ſtrong ſcent. The leaves grow irregularly on the branches, on long footſtalks. They are of a particular ſtructure, being compoſed of three lobes, the middlemoſt of which is ſhortened in ſuch a manner, that it appears as if it had been cut off and hollowed at the middle: The two others are rounded off. They are about four or five inches long, and as many broad. They are of two colours; their upper ſurface is ſmooth, and of a ſtronger green than the lower. They fall off pretty early in autumn; and the buds for the next year's ſhoots ſoon after begin to ſwell and become dilated, inſomuch that, by the end of December, thoſe at the ends of the branches will become near an inch long, and half an inch broad. The outward lamina of theſe leaf-buds are of an oval figure, have ſeveral longitudinal veins, and are of a blueiſh colour. The flowers are produced with us in July, at the ends of the branches: They ſomewhat reſemble the tulip, which occaſions its being called the Tulip-tree. The number of petals of which each is compoſed, like thoſe of the tulip, is ſix; and theſe are ſpotted with green, red, white, and yellow, thereby making a beautiful mixture. The flowers are ſucceeded by large cones, which never ripen in England.

The PROPAGATION of the Tulip-tree is very eaſy, if the ſeeds are good; for by theſe, which we receive from abroad, they are to be propagated. No particular compoſt need be ſought for; neither is the trouble of pots, boxes, hotbeds, &c. required: They will grow exceeding well in beds of common garden-mould, and the plants will be hardier and better than thoſe raiſed with more tenderneſs and care. Therefore, as ſoon as you receive the ſeeds, which is generally in February, and a few dry days have happened, that the mould will work freely, ſow the ſeeds, covering them three quarters of an inch deep; and in doing of this, obſerve to lay them lengthways, otherwiſe, by being very long, one part, perhaps that of the embryo plant, may be out of the ground ſoon, and the ſeed be loſt. This being done, let the beds be hooped; and as ſoon as the hot weather and drying winds come on in the ſpring, let them be covered from ten o'clock in the morning till ſun-ſet. If little rain happens, they muſt be duly watered every other day; and by the end of May the plants will come up. Shade and watering in the hotteſt ſummer

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muſt be afforded them, and they will afterwards give very little trouble. The next winter they will want no other care than, at the approach of it, ſticking ſome furze-buſhes round the bed, to break the keen edge of the black froſts; for it is found that the ſeedlings of this ſort are very hardy, and ſeldom ſuffer by any weather. After they have been two years in the ſeed-bed, they ſhould be taken up and planted in the nurſery, a foot aſunder, and two feet diſtant in the rows. After this, the uſual nurſery care of hoeing the weeds, and digging between the rows in the winter, will ſuffice till they are taken up for planting out.

LONICERA.

Linnean Claſs and Order, *Pentandria Monogynia:* Each flower contains five males and one female: There are fourteen Species; eleven of which will bear the open air of this country.

1. Lonicera *Caprifolium:* The Italian Honeysuckle; *a deciduous or evergreen climber*; native of Italy and the South of Europe.

2. Lonicera *Periclymenum:* The English Honeysuckle, or Woodbine; *a deciduous or evergreen climber*; native of England, Germany, and the midland parts of Europe.

3. Lonicera *Sempervirens:* The Trumpet Honeysuckle; *a deciduous or evergreen climber*; native of America.

4. Lonicera *Diervilla:* The Diervilla, or Acadian Honeysuckle; *a deciduous ſhrub*; native of Acadia and Nova-Scotia.

5. Lonicera *Symphoricarpus:* St. Peter's Wort, or the Virginia Honeysuckle; *a deciduous ſhrub*; native of Virginia and Carolina.

6. Lonicera *Cærulea:* The Blue-berried Honeysuckle, or the Upright Blue-berried Honeysuckle; *a deciduous ſhrub*; native of Switzerland.

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7. LONICERA *Alpigena:* The RED-BERRIED HONEYSUCKLE; or the UPRIGHT RED-BERRIED HONEYSUCKLE; or the ALPINE HONEYSUCKLE; *a deciduous ſhrub*; native of Savoy, and the Helvetian and Pyrenean Mountains.

8. LONICERA *Nigra:* The BLACK-BERRIED HONEYSUCKLE; or the BLACK-BERRIED UPRIGHT HONEYSUCKLE; *a deciduous ſhrub*; native of Switzerland and the Alps.

9. LONICERA *Xyloſteum:* The FLY HONEYSUCKLE; *a deciduous ſhrub:* native of moſt of the coldeſt parts of Europe.

10. LONICERA *Pyrenaica:* The PYRENEAN HONEYSUCKLE, or DWARF CHERRY; *a deciduous ſhrub*; native of the Pyrenean mountains.

11. LONICERA *Tartarica:* The TARTARIAN HONEYSUCKLE, or DWARF CHERRY, or the DWARF CHERRY WITH HEART-SHAPED LEAVES; *a deciduous ſhrub*; native of Tartary.

1. The ITALIAN HONEYSUCKLE. The *varieties* of this ſpecies are, Early White Italian Honeyſuckle, Early Red Italian Honeyſuckle, Yellow Italian Honeyſuckle, Late Red-flowered Italian Honeyſuckle, Evergreen Italian Honeyſuckle.

The *Early White Italian Honeyſuckle* is that which firſt makes its appearance in May. The leaves of this ſort are oval, and placed oppoſite by pairs, cloſe to the branches, at the extremity of which the leaves quite ſurround it. The flowers grow in bunches round the ends of the branches, and have a very fine ſcent. Their blow will be ſoon over; and they are ſucceeded by red pulpy berries, which will be ripe in the autumn.

The *Early Red* differs from the preceding in that the leaves are narrower, the fibres of the flowers are more ſlender, and it blows a little later in the ſpring.

The *Yellow Italian Honeyſuckle* does not blow quite ſo early as the other, and the flowers are yellow: In other reſpects it is very much like the former.

Late Red-flowered Italian Honeyſuckle is one of the beſt we have. The ſtem is tolerably firm; the branches are few, and the leaves large; the flowers are alſo large, of a deep-red colour, though leſs ſcented than the earlier ſorts.

Evergreen Italian Honeyſuckle. This is a ſtronger ſhooter than any of the ſorts. The joints are more diſtant from each other. The leaves are large, of a thick conſiſtence, unite, and ſurround

the

the ſtalk with their baſe, and continue all winter. The flowers are large, of a good red colour, with ſome paler ſtripes, and often continue to blow to the end of autumn.

2. ENGLISH HONEYSUCKLE. The *varieties* of this ſpecies are, The Common Woodbine of our Hedges, The Oak-leaved Honeyſuckle, Red Dutch Honeyſuckle, Midſummer Honeyſuckle, Late German Honeyſuckle, Long-blowing Honeyſuckle, Evergreen Honeyſuckle.

The *Common Woodbine* is known all over England, in our woods and hedges. There are ſtill varieties of this ſort, in its wild ſtate; ſome having prodigious weak trailing branches; others again with tolerably woody ſtems. Some of the flowers are whitiſh, others are of a greeniſh caſt; whilſt others are poſſeſſed of a reddiſh tinge. As the flowers of none of theſe are nearly ſo beautiful as thoſe of the cultivated ſorts, only a plant or two of them ſhould be introduced; which will cauſe ſome variety, and ſerve as a foil to ſet the others off. There is a *ſub-variety* of this ſort, with ſtriped leaves.

Oak-leaved Honeyſuckle is an accidental variety of our Common Woodbine. It differs in no reſpect from it, only that ſome of the leaves are ſhaped like thoſe of the Oak-tree, on which account it is valuable, and makes a pretty variety in collections.

There is alſo a *ſub-variety* of this ſort, with leaves beautifully variegated, called *Striped Oak-leaved Honeyſuckle*.

Red Dutch Honeyſuckle is a very good ſort. It flowers in June, and will often continue in blow a month or two. The branches have a ſmooth purpliſh bark, and may be known from the others even in winter, when they will appear with their ſwelled buds alſo of that colour. The leaves are of an oblong oval figure, and ſtand oppoſite by pairs on the branches, on ſhort footſtalks. The flowers are produced in bunches at the ends of the branches: Their outſide is red, but within they are of a yellowiſh colour, and poſſeſſed of a delightful odour.

The *Midſummer Honeyſuckle* is very much like the former, only the ſtalks are more ſlender, of a lighter-brown colour, and the tubes of the flowers are ſmaller, neither are they ſo red. It will be in blow about Midſummer; and the plant, whether ſet againſt a wall, pales, a hedge, or in the ground, will be all over covered with bloom, making an enchanting appearance to the eye,

eye, and perfuming the air all around to a conſiderable diſtance.

Late German Honeyſuckle is very much like the Red Dutch, only it blows later. It will flower in July and Auguſt; and has all the properties of the other ſorts, as to fragrance and beauty.

The *Long-blowing Honeyſuckle* is ſtill another variety of the Dutch. It will often exhibit flowers in June, July, and Auguſt, though the profuſion will not be ſo great as that of the other ſorts.

Evergreen Honeyſuckle is another variety which retains its leaves all winter. It often flowers late in the autumn; and ſometimes, in mild ſeaſons, retains its bloom until Chriſtmas, which makes it ſtill more valuable.

3. TRUMPET HONEYSUCKLES. Of theſe are the following *varieties:* Virginian Trumpet Honeyſuckle, Carolina Trumpet Honeyſuckle, Evergreen Trumpet Honeyſuckle.

Virginian Trumpet Honeyſuckle is the moſt beautiful of all the ſorts, though Nature has denied it ſmell. The branches are ſlender, ſmooth, and of a reddiſh colour. The leaves ſit cloſe to the branches by pairs. They are of an oblong oval figure, and their lower ſurface is not of ſo ſhining a green as the upper. Thoſe at the extremity of the branches near the flowers ſurround the ſtalk, through which it comes. The flowers grow in bunches, at the ends of the ſhoot, and are of a bright ſcarlet colour. They will often be in blow from June to October; but the flowers have no ſcent.

Carolina Trumpet Honeyſuckle differs in no reſpect from the former, only that the branches are more ſlender, and the leaves and flowers alſo are proportionably ſmaller, thereby making a pretty variety. This ſort was introduced into our gardens from Carolina, as was the preceding from Virginia.

Evergreen Trumpet Honeyſuckle. The leaves are of a thicker ſubſtance, and continue on the plants all winter; but the flowers are of a deep ſcarlet, like the other, and are poſſeſſed of little or no fragrance.

The PROPAGATION of theſe ſorts is very eaſy. 1. The young branches being laid in the ground any time in the winter, with no other art, will become good plants by the autumn following, and may be then taken off for uſe. 2. But our common method

of

of propagating theſe ſorts is by cuttings. The beſt month for this work is October. By this way prodigious quantities of plants may be raiſed, and hardly any of them will fail growing. So eaſily may theſe delightful plants be multiplied, when a plant of each ſort is once obtained.

The Evergreen Italian Honeyſuckle (the beſt of the evergreen ſorts) does not readily take by *cuttings*; ſo that in order to make ſure of this plant, the young branches muſt be *layered*, any time in the autumn or winter, and by the autumn following they will have plenty of roots, and be good plants fit for removing to any place.

The Evergreen Honeyſuckles, though climbing plants, ſhould occaſionally be ſtationed in the evergreen quarters, as ſhould all the other ſorts among the deciduous trees and ſhrubs; being ſo managed that their appearance may agree with thoſe of upright growth. This is done by nipping off the young ſhoots (which would ſoon get rambling and out of reach), that the plants may be kept within bounds, and made to join in the collection with great beauty. Neither may they only be kept low, to almoſt what height is required; but they may, by fixing a ſtake for their ſupport, be trained up to a ſtem, which will every year grow more and more woody and firm; ſo that in this caſe the eye muſt frequently overlook the tree, to take off the young ſhoots as they grow out, and not permit the head to grow too large and ſpreading for the ſtem, which it ſoon would do without this care; and with it, the head may be ſo kept in order as to bear good proportion to the ſtem, thereby cauſing the tree to have the appearance of an upright ſhrub.

4. Diervilla is a ſhrub of about the height of three or four feet. The branches are few, and larger in proportion than the height of the ſhrub; they are very full of pith, and when broken emit a ſtrong ſcent. The leaves are placed oppoſite by pairs, on ſhort footſtalks: They are near three inches long, and about half as broad; and of an oblong heart-ſhaped figure, finely ſerrated, and end in acute points: Their upper ſurface is ſmooth, and of a fine green colour; their under is lighter, and has five or ſix pair of ſtrong nerves running irregularly from the mid-rib to the borders. The flowers are produced in looſe bunches, both at the ends and at the ſides of the branches:

Each

Each is formed of one leaf; the tube is long, and the top is divided into five parts, which turn backward. They are of a yellow colour, and will be in blow in May, and ſometimes moſt of the ſummer months. Theſe flowers are ſucceeded, in the countries where they grow naturally, by black oval berries, each containing four cells. *Dierville* forms an agreeable variety amongſt other ſhrubs of its own growth, though the flowers make no great figure. It is very hardy with reſpect to cold; and may be planted in any part of the nurſery where it is wanted.

No art is required to PROPAGATE this plant; it ſpawns, and thus propagates itſelf in great plenty. Theſe ſuckers ſhould be taken up in autumn, and planted out in the nurſery: After remaining there a year or two, they may be finally taken up. This tree may be alſo encreaſed by cuttings. They ſhould be planted in October, very cloſe, if a quantity are wanted. By the autumn following, they will have good roots. They may be taken up and planted in the nurſery, like the ſpawn, for a year or two, and then ſet out to ſtand. Plants raiſed this way will not be quite ſo ſubject to throw out ſuckers as the others.

5. St. PETER's WORT. St. Peter's Wort will ariſe to the height of about four or five feet. The main ſtems are ragged, and of a dirty dark brown. The branches are numerous and ſhort, though oftentimes it ſends out ſome trailing ſlender branches, which will grow to a great length. The leaves of this ſhrub conſtitute its greateſt beauty: They are very numerous, ſmall, about half an inch long, and of an oval figure. Their footſtalks are exceeding ſhort, and they ſtand oppoſite by pairs on the ſlender branches: Theſe die in the autumn to a dark brown. The time of this plant's flowering is Auguſt. The flowers grow round the ſtalks: They are ſmall, of an herbaceous colour, and make no figure.

The PROPAGATION is very eaſy. 1. If a ſpade-full of mould be thrown over each of the trailing branches, any time in the winter, they will by the autumn following have ſtruck root; and theſe may be planted out in the nurſery, to ſtand until they are of a proper ſize to be planted out for good. 2. This ſhrub may be alſo propagated by cuttings; and in order to obtain good cuttings for the purpoſe, the year before the plants ſhould be headed near the ground, which will make them ſhoot vigorouſly

the ſummer following. Theſe young ſhoots muſt be the cuttings to be planted. October is the beſt month for the work; and if they are planted in a moiſtiſh ſoil, and have a ſhady ſituation, they will have taken good root by the autumn. If they are planted very thick, as cuttings commonly are, they ſhould be all taken up and planted in the nurſery a foot aſunder, and two feet diſtant in the rows; but if the living cuttings are no nearer than about a foot, they may remain without removing until they are planted out.

6. The BLUE-BERRIED HONEYSUCKLE is a ſhrub of about four feet in growth. The branches are round, ſmooth, and of a reddiſh-purpliſh colour. The leaves are oblong, ſpear-ſhaped, of a fine green, and ſtand oppoſite by pairs on the branches. The flowers, which are white, are produced in May from the ſides of the branches, and are ſucceeded by blue berries, that will be ripe in Auguſt.

7. The RED-BERRIED HONEYSUCKLE will grow to the height of about five feet. The branches are very upright; the young ſhoots are angular, and covered with a brown bark. The leaves are tolerably large, ſpear-ſhaped, a little reſembling thoſe of the mock Orange, and grow oppoſite to each other. The flowers are produced from the ſides of the branches, on long footſtalks: They are of a red colour, come out in April, and are each ſucceeded by a pair of red berries, which will be ripe the end of July or early in Auguſt.

8. BLACK-BERRIED HONEYSUCKLE differs from the Blue-berried only in that the ſeeds of this are black, and grow two together; whereas thoſe of the Blue-berried are ſingle and diſtinct. Except this, there is hardly any difference to be perceived.

9. FLY HONEYSUCKLE will grow to the height of about ſeven or eight feet. The bark on the branches is of a whitiſh colour, which cauſes a variety, and makes it diſtinguiſhed in the winter ſeaſon. The leaves, which are placed oppoſite by pairs, are downy, and of an oblong oval figure. The flowers are white and erect: They are produced from the ſides of the branches in June, and are ſucceeded by two red berries, which will be ripe in September.

10. The

10. The PYRENEAN HONEYSUCKLE, or DWARF CHERRY, is but a low ſhrub: It ſeldom arrives to more than a yard in height. The branches are produced irregularly. The leaves are ſmooth, oblong, and placed oppoſite by pairs. The flowers are white, produced from the ſides of the branches, on ſlender footſtalks, in April; and are ſucceeded by roundiſh berries, which will be ripe in September.

11. TARTARIAN HONEYSUCKLE, or DWARF CHERRY WITH HEART-SHAPED LEAVES, is a ſhrub of about three or four feet high. Its branches are erect, like the upright ſorts; and it differs in few reſpects from them, except that the leaves are heart-ſhaped. It exhibits its flowers in April; and theſe are ſucceeded by twin red berries, which will be ripe in Auguſt.

Theſe are the *Upright* ſorts of the *Lonicera*; to which one method of PROPAGATION is common; and that may be performed two ways. 1. By ſeeds. Common garden-mould, dug fine, and cleared of the roots of all weeds, will ſerve for their reception. In this the ſeeds ſhould be ſown ſoon after they are ripe, about half an inch deep. After the beds are neated up, they will require no other care until the ſpring; when the weeds ſhould be picked off as faſt as they appear. Some of the plants by this time will have come up; but the far greater part will remain until the ſecond ſpring before they ſhew themſelves; ſo that the beds muſt be entirely untouched until at leaſt two years after ſowing. They will require no care all this time, except being kept clear of weeds; though if watering be afforded them in dry weather, it will be the better. After they are all up, and have ſtood a year or two in the ſeed-bed, they may be taken up and planted in the nurſery, at ſmall diſtances; and in two or three years they will be of a proper ſize to plant out to ſtand. 2. All theſe ſorts may be alſo propagated by cuttings. Theſe ſhould be planted in October, in any ſort of garden-mould that is tolerably good. If a quantity is wanted, they may be placed very cloſe; and a ſmall ſpot of ground will hold thouſands. If the place be ſhaded, it will be a great advantage, as moſt cuttings are in danger of ſuffering by the violence of the ſun's rays before they have ſtruck, or whilſt they are ſtriking root. The winter following, they may be all taken up and planted out in the nurſery, a foot aſunder, and two feet diſtant in the rows, where they may ſtand until they are finally taken up for planting.

LYCIUM.

LINNEAN Claſs and Order, *Pentandria Monogynia*: Each flower contains five males and one female: There are eight SPECIES; one only of which is hardy enough to ſtand a ſevere winter in our climate.

LYCIUM *Barbarum*: The BOXTHORN; *a deciduous creeper*; native of Aſia, Africa, and Europe.

The BOXTHORN. This ſpecies affords two *varieties*:

The Broad-leaved Boxthorn,
The Narrow-leaved Boxthorn.

The Broad-leaved Boxthorn is a rambling plant, and will, if let alone, in a few years overſpread every thing that is near it. The branches are very many, and ſpread about in all directions. They will lie upon the ground, if unſupported, and will ſhoot, in a good ſoil, ſixteen feet in length in one ſummer. Thoſe branches that lie upon the ground will ſtrike root; ſo that from every part freſh ſhoots will be ſet forth the next ſpring; and thus in a few years they will occupy a large compaſs of ground; ſo that whenever this plant is deſired, they ſhould be conſtantly kept within bounds. Indeed, from its exceeding rambling nature, not above a plant or two for variety or obſervation ſhould be admitted in hardly any place. The branches of this plant are covered with a grey or whitiſh bark. The leaves are of a light, whitiſh-green, and of a thick conſiſtence. They grow on the branches, on all ſides, by threes. This plant, of all the ſorts, is poſſeſſed of the longeſt ſpines (ſome of which are a foot or more in length). Theſe ſpines are garniſhed with leaves; and on theſe they for the moſt part ſtand ſingly in an alternate manner. On the branches where they grow by threes, the middle one is always the largeſt. They are all of an oval, ſpear-ſhaped figure, are very ſmooth, a little gloſſy, and often continue till the middle of winter before they fall off. Beſides the long leafy thorns before-mentioned, it produces many ſhort ſharp ſpines, of a white colour, near the ends of the ſhoots. The flowers are produced in Auguſt, and there will be often a ſucceſſion of blow until the froſts come on. They grow ſingly at the joints, on ſhort foot-

ſtalks.

ſtalks. They are of a purpliſh colour, ſmall, and are ſucceeded by no fruit with us, as I could obſerve.

The *Long Narrow-leaved Boxthorn* is alſo a very great rambler. The branches are many, and are produced irregularly on all ſides. It is poſſeſſed of ſpines, but theſe are very ſhort, and the bark with which they are all covered is pretty white. The leaves are of a lanceolate figure, and are narrow and long. Their colour is that of a whitiſh-green, and they grow alternately on the branches. The flowers are ſmall, and appear in July; and are ſucceeded by red berries, which ripen in September, and at that time are very beautiful.

The PROPAGATION of theſe ſorts is by cuttings; for they will grow, if planted at any time, in any manner, and in almoſt any ſoil or ſituation, except a white clay. In a black rich earth, they will be the moſt healthful and moſt vigorous ſhooters; and though the cuttings will grow at all times, yet the winter-months are to be preferred for the purpoſe.

MAGNOLIA.

LINNEAN Claſs and Order, *Polyandria Polygynia:* Each flower contains many males and many females: There are four SPECIES:

1. MAGNOLIA *Glauca:* The SEA-GREEN MAGNOLIA, or the BAY-LEAVED TULIP-TREE, or the SMALL MAGNOLIA; *a tall ſub-evergreen ſhrub*; native of Virginia and Pennſylvania.

2. MAGNOLIA *Acuminata:* The LONG-LEAVED MAGNOLIA; *a ſub-evergreen ſhrub or tree*; native of Pennſylvania.

3. MAGNOLIA *Tripetala:* The UMBRELLA-TREE; *a ſub-evergreen ſhrub or tree*; native of Carolina and Virginia.

4. MAGNOLIA *Grandiflora:* The EVERGREEN MAGNOLIA, or LAUREL-LEAVED TULIP-TREE; *an evergreen tree*; native of Florida and Carolina.

1. The SEA-GREEN or SMALL MAGNOLIA grows with us to about the height of ten or twelve feet. The wood is white; and

the branches, which are not very numerous, are covered with a ſmooth whitiſh bark. The leaves are tolerably large, and of two colours; their upper ſurface being ſmooth, and of a fine green, whilſt their under is hoary. They are of an oval figure, have their edges entire, and often continue the greateſt part of the winter before they fall off the trees. The flowers are produced at the ends of the branches, in May: Their colour is white; and the petals of which they are compoſed are concave and large; ſo that, together with the numerous ſtamina in the center, they preſent a beautiful appearance. They are alſo remarkable for their ſweet ſcent; and are ſucceeded by conical fruit, which never ripens in England; but in the places where they grow naturally, a ſingular beauty and oddity is added to theſe trees by the fruit; for the ſeeds are large, and lodged in cells all around the cone. When quite ripe, theſe are diſcharged from their cells; and hang each by a long narrow thread, cauſing thereby an uncommon and pleaſing effect.

2. LONG-LEAVED MAGNOLIA will grow to be near twenty feet high. The wood of this ſort is yellow, and the branches are covered with a ſmooth light bark. The leaves are very large, being near ten inches long; their figure is oval, ſpear-ſhaped, and all end in points. The flowers, which are produced in May, are white, and compoſed of twelve obtuſe petals, which, together with the number of ſtamina, make a good ſhow. Theſe alſo are ſucceeded by conical fruit, which never ripens in England.

3. The wood of the UMBRELLA-TREE, which grows to about twenty feet in height, is more ſpongy than any of the other ſpecies of *Magnolia*. It is called the *Umbrella-Tree*, from its manner of producing the leaves; for theſe are exceeding large, and ſo produced as to form the appearance of an umbrella. The flowers of this ſort alſo are white, and the number of petals of which each is compoſed is about ten: They are ſucceeded by fruit of a conical figure, with many cells all round for the ſeeds, which never ripen in England.

All theſe ſorts may be PROPAGATED by ſeeds, layers, and cuttings. By the firſt of theſe methods the beſt plants are raiſed, though it is a very tedious way, and muſt be followed with great

patience

patience and trouble. We receive the ſeeds from thoſe parts of America where they grow naturally. Theſe are always preſerved in ſand, but, nevertheleſs, will not always prove good. As ſoon as poſſible after they arrive, which is generally in February, they ſhould be ſown in pots, about half an inch deep. The beſt compoſt for them is a freſh loamy earth, mixed with a fourth part of drift ſand; and the ſeeds ſhould be thinly ſown in each pot. After this is done, the pots ſhould be plunged up to the rims in the natural mould, under a warm hedge, where they may reap the benefit of the ſun during the month of March and part of April; but when the rays of the ſun begin to be ſtrong and powerful, drying the mould in the pots very faſt, they ſhould be taken up and plunged again up to the rims in a ſhady border. By the end of May, if the ſeeds were good, the plants will come up; and all the ſummer they muſt be conſtantly attended with weeding and watering. At the approach of winter, they ſhould be removed into the greenhouſe, or placed under ſome cover; but in mild weather ſhould always have the benefit of the open air and gentle ſhowers. In March, the pots with their ſeedlings ſhould be plunged into an hot-bed to ſet them forwards. Tanners bark is what the hotbed ſhould be compoſed of; and as much air as the nature of the bed will allow, ſhould always be afforded them. Water alſo muſt be given pretty often, though in ſmall quantities, and the glaſſes muſt be ſhaded in the heat of the day. After this, about June, they ſhould be inured to the open air; watering muſt ſtill be afforded them; and this is what they require during the ſecond ſummer. It has been a practice to plunge the pots into an hotbed ſoon after the ſeeds are ſown; but this is a very bad method, for the young plants being thereby forced, grow thin and ſlender, and are ſeldom made to live longer than the firſt year. The ſecond ſummer's management alſo has uſually been, to plant the ſeedlings in March, in little pots, and then plunge them into a hotbed: but this is alſo a very bad way; for theſe ſeedlings, whether raiſed on hotbeds or the common ground, will be ſmall, and not of conſiſtence ſufficient to draw the juices, though the powers of vegetation are aſſiſted by an hotbed: Thus, hardly any of them ſurvive this early tranſplanting. This having been the general practice, theſe plants have been always thought very difficult to preſerve the ſecond year; whereas all

thoſe difficulties vaniſh, by obſerving the above-directed method; for by letting the ſeeds have only the natural ſoil, they will the firſt ſummer be formed into young plants, which, though ſmall, will nevertheleſs be plants, and healthy. Thus being in the ſpring in their natural ſtate, with their pores open to receive the nutritious juices, and not having ſuffered by being tranſplanted, the hotbed will ſo help them, that they will be pretty plants by the autumn. At the approach of winter, they muſt be removed again under cover, and the former aſſiſtance of an hotbed ſhould be afforded them; and this ſhould be repeated until the plants are grown to be a foot or more in length. The ſpring following, the mould ſhould be turned out of the pots and ſhaken from the roots, and each plant put into a ſeparate pot. For theſe, an hotbed of tanners bark ſhould be ready, which will promote their growth, and make them healthy and fine. During the time they are in the bed, they ſhould be ſhaded; and about Midſummer the pots may be taken out and placed in a ſhady border. The winter following, it will be proper to houſe them in ſevere froſty weather; but always obſerve to place them abroad in mild ſeaſons. In March they may be turned out of the pots, the mould hanging to the roots, and planted with that in the places where they are to remain. 2. Theſe plants may be alſo propagated by layers. The young ſhoots in the autumn are moſt proper for he purpoſe; and it is found that a gentle twiſt, ſo as juſt to break the bark about the joint, is a better method than any other in practice. Theſe will ſometimes ſtrike root in one year, and ſometimes you muſt wait more than two before you find them with any. After they have ſtruck root, and are taken up, the beſt time for which is March, it is moſt eligible to plant each ſeparately in a pot, and plunge them into an hotbed, as directed for the ſeedlings; and by the ſpring following they will be ſtrong good plants for any place. 3. Theſe plants may likewiſe be encreaſed by cuttings; by which they may be procured in plenty, if a perſon has the conveniency of a good ſtove; and without one this method ſhould not be attempted. Theſe cuttings ſhould be planted in pots; and after they are ſet in the ſtove, muſt be duly watered and ſhaded: By obſerving theſe directions, many of them will grow. After this, they ſhould be brought by degrees to the open air; the winter following they

ſhould

ſhould be placed under an hotbed-frame, or ſome ſhelter; and in the ſpring planted out to remain.

Theſe plants often retain their leaves, eſpecially when young, all winter, or the greateſt part of it, in ſome ſituations; and in ſuch they paſs for evergreens.

4. The Evergreen Laurel-leaved Magnolia. In the countries where it grows naturally, it arrives to the height and bulk of a timber-tree. Thoſe countries are adorned with woods that are chiefly compoſed of this plant; and indeed, a wood of ſo noble a tree, luxuriantly ſhooting, flowering, and ſeeding, healthy and ſtrong, in ſoil and ſituation wholly adapted to its nature, muſt be a ſight of which we can hardly form an adequate idea, or have a juſt conception of its beauty or grandeur; for the tree naturally aſpires with an upright ſtem, and forms itſelf into a regular head. Many other trees do the ſame; but its moſt excellent properties conſiſt of the ſuperlative beauties of the leaves, flowers, and ſeeds. The leaves much reſemble thoſe noble leaves of the Laurel, from which it is ſo called, only they are larger, and of a thicker conſiſtence: Many of them will be ten inches or more in length, and four broad, and all are firm and ſtrong. Their upper ſurface is of a ſhining green, but their under is lighter, and often of a browniſh colour. This tinge, which is not always found in all trees, is by ſome thought a great beauty, and by others an imperfection; ſo various is the taſte of different people. Theſe leaves are produced without any order on the tree, and ſit cloſe to the branches, having no ſeparate footſtalks. The idea we can form of a tree, of ſeventy or eighty feet high, plentifully ornamented with ſuch large and noble leaves, muſt be very great, and will induce us on their account only to endeavour to naturalize ſo noble a plant to our country. But let us conſider their flowers. Theſe we find large, though ſingle, and of a pure white. They are produced at the ends of the branches, in July, and each is compoſed of about nine or ten large ſpreading petals. They have the uſual properties of thoſe that are broad and rounded at their extremity, of being narrow at the baſe, and their edges are a little undulated or waved. In the center of theſe petals are ſituated the numerous ſtamina, which the Botaniſt will be more curious in obſerving than the Gardener. But what affects all equally alike that have the ſenſe

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of ſmelling is, their remarkable fragrance, which indeed is of ſo great a degree, as to perfume the air to ſome diſtance; and if one tree, when in blow, is ſufficient to effect this, what conception ſhould we form of the odours diffuſed in the countries where there are whole woods of this tree in full vigour and blow! The fruit is nearly of the ſhape and ſize of a large egg; but what make it moſt ſingular and beautiful are the pendulous ſeeds, of a fine ſcarlet, which being diſcharged from their cells, hang by long threads, and have an effect both ſtriking and uncommon.

Rules have been given above for PROPAGATING deciduous *Magnolias:* the ſame rules obſerved, whether for ſeeds, layers, or cuttings, will raiſe plenty of this ſort; neither need any thing be added, except hinting to the Gardener, that this is more tender than the other ſorts, and that from thence he ſhould learn not to be over-haſty in committing theſe plants to the winter's cold, and planting them finally out. Snow is peculiarly injurious to them while young; ſo that, at the approach of ſuch weather, they muſt be particularly covered; and if ſnow ſhould happen to fall unawares, it ſhould be carefully cleared off the leaves and ſtems. When theſe plants are ſet abroad to remain, if the place is not exceedingly well ſheltered, it will be proper to have a ſhed at hand, which the Gardener may put together, to ſcreen them from the ſevere northern froſts, and the black eaſterly winds, from which this ſhrub is moſt likely to ſuffer damage; and theſe froſty winds are the moſt deſtructive to it when they come early in the winter, while the ſhoots are rather tender; for then they are often deſtroyed, and the tree rendered unſightly for ſome time, though it will ſhoot out again. When this ſhrub is to be encreaſed by layers, it will be neceſſary, after the operation is performed, to make an hedge of reeds, or ſomething, at a little diſtance round it, to keep off the ſtrong winds, and prevent them from blowing the layers out of the ground; for without ſome guard this will be in danger of being done; ſince the leaves being very large and ſtrong, the wind muſt have great power over them.

MEDICAGO.

LINNEAN Claſs and Order, *Diadelphia Decandria*: Each flower contains ten males and one female; the males being connected at the baſe in two diviſions: There are twenty-four SPECIES; one of which, only, is admiſſible into our collection; the reſt being herbaceous plants.

MEDICAGO *Arborea*: The TREE LUCERNE, or TREE MEDICK, or MOON-TREFOIL; *an evergreen ſhrub*; native of Italy, Crete, and the iſlands of the Archipelago.

The TREE LUCERNE will grow to be ſix or ſeven feet high, and divides without any order into many branches, which are covered with a grey bark. There is a delicacy in the young ſhoots beyond what is found in moſt trees; for they are white and ſilvery, and at the ſame time covered with the fineſt down. Theſe young ſhoots are plentifully ornamented with leaves, many of which come out from a bud. They are trifoliate, and grow on long ſlender footſtalks. One of the folioles is cuneiform, or ſhaped like a wedge; the others grow out more into a lanceolate figure, have alſo a whitiſh look, and are downy, though not to ſo great a degree as the young twigs on which they grow. They have a large mid-rib, which contracts the borders in the evening, and this alters their poſition of ſides on the alteration of weather. The flowers are produced from the ſides of the branches, in cluſters, on long footſtalks. Each of theſe cluſters will be compoſed of ten or twelve flowers, which are of a beautiful yellow. They are of the butterfly kind; and are ſucceeded by moon-ſhaped pods, that ripen their ſeeds very well. One or other of theſe trees is to be found in blow almoſt at all times. The beginning of the blow is generally ſaid to be in April or May; and indeed then we may expect to ſee the flowers largeſt and in the greateſt perfection; but the flowers of theſe trees may be ſeen in July, Auguſt, and September; and in greenhouſes have been known to blow all winter; which makes the tree more valuable to thoſe who are deſirous of ſeeing flowers in unuſual months.

This ſhrub is by many ſuppoſed to be the true *Cytiſus* of Virgil. It grows plentifully in Italy, in the iſlands of the Archipelago,

chipelago, and many other parts, where it is eſteemed excellent fodder for cattle. "For this purpoſe, continues HANBURY, the raiſing of it has been recommended in England; but there ſeems no probability of ſuch a ſcheme being brought to bear here; neither is it any way neceſſary to give ourſelves the trouble to try experiments of this kind, as, ſhould it even ſucceed to our utmoſt wiſhes, we have many ſorts of fodder that will exceed it in quantity and quality, without any proportion to the extraordinary expence which muſt attend the raiſing any quantity of theſe ſhrubs, to cut for that uſe. The flowers, leaves, and top-ſhoots have, however, a fine peaſe-like taſte, which is what, I make no doubt, moſt cattle would be fond of, and of which the inhabitants of ſome countries where it grows naturally reap the advantage; for the goats that feed on it yield a greater quantity as well as a more excellent kind of milk, from which good cheeſe is at length obtained, where theſe creatures have plenty of theſe ſhrubs to brouze upon.

"In our wilderneſs-quarters we muſt give this tree a very dry ſoil and a well-ſheltered ſituation; for with us it is rather a tender ſhrub, and has been frequently treated as a greenhouſe-plant; and this is another argument againſt any attempt to raiſe theſe ſhrubs for fodder in England: They are too tender to bear our ſevere winters without ſhelter; and ſhould we proceed in raiſing ſixty or ſeventy acres, a thorough froſty winter would deſtroy the greateſt part of them; or, if the winter ſhould not be ſo ſevere as totally to kill them, yet their end ſhoots would be ſo nipped and damaged, that it would be late in the ſummer before they would ſhoot out and recover this injury, and conſequently ſmall crops muſt be expected."

This plant is eaſily PROPAGATED by ſeeds or cuttings. 1. The ſeeds ſhould be ſown in the ſpring, a quarter or half an inch deep, in beds of fine light garden-mould. After they are come up, the uſual care of weeding muſt be afforded them; and if they are ſhaded and now and then watered in hot weather, it will be ſo much the better. The beds muſt be hooped againſt winter, and plenty of mats muſt be ready to cover the plants when the froſt comes on; and if this ſhould be very ſevere, their covering ſhould be encreaſed, or there will be danger of loſing them all. In the ſpring the ſtrongeſt may be drawn out, and planted in pots, to be houſed for a winter or two,

until

until they are got ſtrong; but where a quantity is wanted, and there is no ſuch conveniency, it may be proper to let them remain in the ſeed-bed another winter, for the conveniency of being covered in bad weather; and then in the ſpring they may be planted out in the nurſery, in lines two feet aſunder, and at one foot diſtance. This nurſery ſhould be in a well-ſheltered warm place, and they will be ready for tranſplanting whenever wanted. 2. Theſe plants may be raiſed by cuttings. If a few only are wanted for ornamenting a ſhrubbery, the beſt way will be to plant theſe in pots, and ſet them up to the rims in a ſhady place, that they may have the conveniency of being houſed in winter. When a quantity is wanted, they muſt take the chance of wind and weather, and the moſt we can then do is to plant them in fine light ſoil in a well-ſheltered place. The latter end of March is the beſt time for the purpoſe; they will ſtrike root freely, eſpecially if they are ſhaded and watered in dry weather; and from this place they need not be removed until they be finally ſet out.

MELIA.

LINNEAN Claſs and Order, *Decandria Monogynia*: Each flower contains ten males and one female: There are two SPECIES; one of which will bear the open air; the other is a hot-houſe plant.

MELIA *Azedarach*: The BEAD-TREE, *a deciduous tree*; native of Syria.

The BEAD-TREE is a large plant: in its native country it will grow to the ſize of one of our pear-trees; and there is no doubt, if our ſoil and ſituation ſuited it, that it would arrive to near that magnitude with us. The trunk is covered with a grey bark; and the young branches, which are not very numerous, are quite ſmooth and green. The leaves are a very great ornament to this tree: They are compound, and very large, the whole leaf being a foot and a half, and ſometimes near two feet long. Each is compoſed of a great number of folioles,

folioles, which are all terminated by an odd one. Theſe little leaves have their upper ſurface of a ſtrong ſhining green; their under is paler; and their edges are indented. The flowers are produced in July, from the ſides of the branches, in long cluſters: They are, ſeparately, ſmall, of a blueiſh colour, very fragrant, and each ſtands on a long footſtalk. The flowers are ſucceeded by a yellow fruit, tolerably large, in which ſome nuts are encloſed, uſed in the Catholic countries to compoſe ſome ſorts of roſaries; on which account this tree is called the Bead-Tree.

"It is generally preſerved in winter as a greenhouſe plant; and indeed a few plants of this fine ſhrub ought always to be introduced in ſuch places deſigned for trees as are proper for them. The reaſon of its being treated as a greenhouſe plant is, becauſe it is rather of a tender nature; and as the plants are not yet very plentiful in England, to this may be added, the deſire of preſerving thoſe few a perſon has obtained. But notwithſtanding the Bead-Tree's being looked upon as a greenhouſe-plant, ſome gardeners have ventured to ſet them abroad againſt warm walls, where they have ſtood the winter, and flouriſhes exceeding well; others have planted them out in well-ſheltered places only, where they have flouriſhed and ſtood the brunt of many winters. What inclines me to introduce the *Melia* amongſt our hardy trees is, that I have planted it in an open cold expanſe, in a naturally damp and moiſt ſoil, where it has flouriſhed for more than ſeven years, and diſplayed its beautiful foliage every ſummer, to the great pleaſure of all beholders. This treatment and practice, however, muſt be uſed with caution; and whoever ventures to plant them abroad muſt have a dry ſoil, as well as a warm and well-ſheltered ſituation, and then nothing but our hardeſt froſts will deprive the owner of theſe treaſures. But, were they more tender, and if a perſon has no greenhouſe, it will be worth while to venture the planting a few abroad, though there ſhould be little chance of his keeping them longer than two or three winters, as they are ſcarce plants with us, and the leaves, the only beauties the tree can afford in that time, are compounded in ſuch a manner as to afford admiration and pleaſure." HANBURY.

PROPAGATION. Care and trouble muſt be uſed before we can raiſe theſe plants to be of ſufficient ſtrength and hardineſs to

defend themſelves, when planted finally out. They are all to be raiſed from ſeeds; and theſe are to be procured from the places where they commonly grow, which is in moſt of the Catholic countries. Theſe ſeeds muſt be ſown in pots, filled with light ſandy earth, half an inch deep, the end of March. This done, the pots ſhould be plunged into a bark-bed, which will cauſe them to come up. When the plants appear, they muſt have plenty of air and water; and the open air muſt be afforded them pretty ſoon in the ſummer, that they may be hardened before winter. After they are taken out of the beds, they ſhould be ſet in a ſhady place, and every other day watered till the autumn: and at the approach of winter, they ſhould be removed into the greenhouſe, with the hardieſt of thoſe plants. In April following, the plants ſhould be taken out of the pots, and each planted in a ſeparate ſmall pot; and after this is done, they ſhould have the benefit of the bark-bed as before, to ſet them a-growing. Care muſt be taken to give them ſufficient air, and not to draw them too much; and after they are well entered upon a growing ſtate, they muſt be hardened to the open air as ſoon as poſſible, and the pots taken out, and plunged up to the rims in a ſhady border, which will prevent the mould in the pots drying too much. They will require little watering, if this method be uſed, during the ſummer; and at the approach of winter, they muſt be removed into the greenhouſe as before, or placed under a hot-bed-frame, or ſome ſhelter. The next ſpring they muſt be ſet out with other greenhouſe-plants, and managed accordingly, and removed into the houſe again with them. Every other year, they ſhould be ſhifted out of their pots, with the earth to their roots, and planted in larger; and by thus treating them as greenhouſe-plants, and letting them have larger pots as they encreaſe in ſize, till they are ſix or eight years old, they will arrive to be good ſtrong trees. Then in April, having made choice of the drieſt, warmeſt, and beſt-ſheltered ſituation, there they may be planted, taking them out of the pots with all their mould; which if done with care, they will never droop on being removed.

MENISPERMUM.

LINNEAN Claſs and Order, *Dioecia Dodecandria:* Male flowers containing twelve ſtamina, and female flowers containing two piſtils, are ſituated upon diſtinct plants; There are eight SPECIES; three of them as follows:

1. MENISPERMUM *Canadenſe:* The CANADA MOONSEED; *a ligneous climber*; native of Canada and Virginia.

2. MENISPERMUM *Virginicum:* The VIRGINIA MOONSEED; *a ligneous climber*; native of the ſea-ſhore of Virginia and Carolina.

3. MENISPERMUM *Carolinum:* The CAROLINA MOONSEED; *an herbaceous climber*; native of Carolina.

1. The CANADA MOONSEED will twine round trees to the height of fifteen or ſixteen feet; and if there be no trees near for it to aſpire by, its almoſt numberleſs branches will twiſt and run one among another, ſo as to form a thick cloſe-ſet buſh. Theſe twining ſtalks are covered with a ſmooth green bark, though in ſome places they are often reddiſh, and in winter often of a brown colour. The leaves are very large, and ſtand ſingly upon long green footſtalks, which alſo have a twining property, and aſſiſt the plant to climb. Theſe leaves have their upper ſurface ſmooth, and of a ſtrong green colour, but are hoary underneath. They are what are called peltated leaves: The footſtalk is not near the middle of the leaves, but within about a quarter of an inch of the baſe, and from thence it branches into ſeveral veins unto the extremity. Theſe peltated leaves are of a roundiſh figure in the whole, though they are angular, and being large, and of a good green, make it a valuable climber. The flowers are produced in July, from the ſides of the ſtalks. They grow in bunches, and are of a greeniſh colour. They are ſucceeded by ſeeds, which often ripen well here.

2. The VIRGINIA MOONSEED differs very little from the other, except in the ſhape of the leaves; for it has the ſame kind of twining ſtalks, produced in great plenty, and the flowers and fructification are the ſame; ſo that nothing more need be obſerved of this, only that the leaves are often heart-ſhaped, and many of them have lobes like thoſe of the common Ivy.

3. The

3. The CAROLINA MOONSEED is an herbaceous climber, and will, by the aſſiſtance of trees, riſe to be ten or twelve feet high. The twining ſtalks are garniſhed with heart-ſhaped leaves, which do not divide into lobes like the others. Theſe leaves, which are of a good ſtrong green colour, have their under ſurface hairy, and are much ſmaller than either of the other ſorts; the ſpecies itſelf being of all the leaſt valuable, as it is ſcarcely ever known to produce flowers here.

All theſe ſorts PROPAGATE themſelves very faſt. 1. If they are planted in a light ſoil, their roots will ſo ſpread and multiply the ſhoots, that in a few years after planting, each of them being wholly taken up, they may be parted, often into ſome ſcores of plants, which will be fit to ſet out, the weakeſt in the nurſery to gain ſtrength, and the ſtrongeſt where they are to remain. Any time from October to March will do for taking off the ſuckers or parting the roots. 2. The young ſhoots, alſo, being covered with mould, will grow, and be good plants in one year. 3. They may be likewiſe raiſed by ſeeds; for if theſe are ſown in the ſpring, in a bed of light earth, half an inch deep, they will come up, and require no other trouble than weeding until they are finally planted out, which may be two years after their appearance, and which may be done very well from the ſeed-bed, without previous planting in the nurſery.

MESPILUS.

LINNEAN Claſs and Order, *Icoſandria Pentagynia*: Each flower contains about twenty males and five females. There are nine SPECIES; ſeven of which are here treated of:

1. MESPILUS *Germanica*: The GERMAN MEDLAR, or DUTCH MEDLAR; *a deciduous tree*; native of the ſouth of Europe.

2. MESPILUS *Arbutifolia*: The ARBUTUS-LEAVED MEDLAR, or the VIRGINIA WILD SERVICE TREE; *a deciduous ſhrub*; native of Virginia.

3. MESPILUS *Amelanchier*: The AMELANCHIER; *a deciduous ſhrub*; native of Auſtria, France and Italy.

4. MESPILUS *Canadenſis*: The CANADA MEDLAR; *a deciduous ſhrub*; native of Canada and Virginia.

5. MESPILUS *Cotoneaſter*: The DWARF QUINCE; *a deciduous ſhrub*; native of the Pyrenees, Ararat, and many of the cold parts of Europe.

6. MESPILUS *Chamæ Meſpilus*: The BASTARD QUINCE; *a deciduous ſhrub*; native of the Auſtrian and Pyrenean mountains.

7. MESPILUS *Pyracantha*: The PYRACANTHA, or EVERGREEN THORN; *an evergreen ſhrub or climber*; native of Italy and the ſouth of France.

1. The GERMAN MEDLAR in ſome ſituations grows to be a moderately large tree. It grows irregularly, and the branches are frequently crooked. The leaves are ſpear-ſhaped, large, entire, downy underneath, and grow on very ſhort channeled footſtalks. The flowers, which grow ſingly from the ſides of the branches, are very large, and of a white colour. They come out the end of May, and are ſucceeded by that well-known fruit called the *Medlar*.

The *varieties* of this ſpecies are, *The Pear-fruited Medlar*, and *The Nottingham Medlar*. Theſe are plants of more upright growth than the Dutch Medlar. Their leaves are narrower, and their flowers and fruit ſmaller.

2. ARBUTUS-LEAVED MEDLAR. This is frequently called Virginia Wild Service-tree with an Arbutus Leaf. It is a ſhrub about ſix feet high, frequently ſending forth many ſuckers from the root, and branches from the ſides of the plant. The leaves are ſpear-ſhaped, downy underneath, and indented. They grow alternately on very ſhort footſtalks. Their upper ſurface is a fine green colour, though white below; and they die to a purple colour in the autumn. The flowers are produced in bunches from the ends and ſides of the branches: They are ſmall, white, come out in May, and are ſucceeded by a dark-brown fruit, like the common Haw, which will ſometimes be ripe in the autumn.

3. AMELANCHIER. The ſtalks of this ſpecies are ſlender, branching a little, and grow to about four feet high. The young branches are of a reddiſh-purple colour, and the whole plant

plant is altogether deſtitute of thorns. The leaves are oval and ſerrated, about three quarters of an inch long, half an inch broad, green on their upper ſurface, and woolly underneath. The flowers are produced in bunches from the ends of the branches: Their colour is white; and they are ſucceeded by ſmall black fruit, of a ſweetiſh taſte, which will be often ripe in the autumn. This is a beautiful ſhrub, and in different parts goes by the various names of the *Dwarf Black-fruited Medlar*, the *New-England Quince*, *Vitis Idæa*, &c. The young ſhoots which ſupport the flowers are woolly underneath; but this by degrees wears off, and they ſoon become of a purple colour, which remains all winter.

4. CANADA MEDLAR. This ſhrub, which riſes to about five feet high, is free from thorns, and divides into a few branches, which are ſmooth, and of a purpliſh colour. The leaves are oval, oblong, ſmooth, ſlightly ſerrated, and grow on long ſlender footſtalks. The flowers are white, and terminate the branches in ſmall bunches: They come out in May; and are ſucceeded by a purpliſh fruit, hardly ſo large as the common Haw.

5. DWARF QUINCE grows to about four or five feet high. The branches are few, ſmooth, and of a reddiſh-purple colour. The leaves are oval, entire, and grow on very ſhort footſtalks. The flowers are produced, two or three together, from the ſides of the branches, without any footſtalks. They are ſmall, of a purpliſh colour, come out in May, and are ſucceeded by round fruit, of a bright red colour when ripe, in the autumn.

6. BASTARD QUINCE. This ſpecies grows to about four or five feet high. The branches are few, ſmooth, ſlender, and covered with a purpliſh bark. The leaves are oval, ſmooth, ſerrated, of a yellowiſh green, and grow on pretty long footſtalks. The flowers are produced in ſmall heads, from the wings of the ſtalks; and between them are long narrow bracteæ, which fall off before the flowers decay. Both flowers and bracteæ are of a purpliſh colour: The fruit is ſmall, and of a red colour when ripe.

All theſe ſorts are to be PROPAGATED from the ſeeds, from layers, and by budding them upon Hawthorn ſtocks. 1. The ſeeds ſhould be ſown in the autumn, ſoon after they are ripe, in a bed of good earth, in a moiſt part of the garden. They

uſually lie two years before they make their appearance; during which time the bed muſt be kept clean from weeds. When the plants come up, they muſt be frequently watered, if dry weather ſhould happen; and this ſhould occaſionally be repeated all the ſummer. Weeds muſt be eradicated as they ariſe; and in the autumn, winter, or ſpring, the ſtrongeſt plants may be drawn out, and ſet in the nurſery ground, a foot aſunder, in rows two feet diſtant from each other; whilſt the others may remain in the ſeed-beds a year longer, to gain ſtrength. In the nurſery the Medlars ſhould be trained for ſtandards, if deſigned for fruit; or they may be headed to any height if for other purpoſes, while the lower kinds will require no other management than keeping them clean from weeds, and digging the ground between the rows in winter. 2. Theſe plants may be alſo raiſed by layers, eſpecially the five laſt ſorts. The young branches ſhould be laid early in the autumn; and by the autumn following many of them will have ſtruck root, when they ſhould be taken up, and planted in the nurſery-ground, like the ſeedlings, to remain there for a year or two, before they are finally ſet out. 3. But the moſt expeditious, and by far the beſt way of raiſing theſe ſorts is, by budding them upon ſtocks of the White-thorn. The Haws to raiſe the ſtocks ſhould be gathered from ſuch trees as are largeſt, ſhoot freeſt, and have the largeſt leaves and feweſt thorns. When the ſtocks are one year old, they ſhould be ſet in the nurſery at the beforementioned diſtance. By the end of July, many of them will be ready for working; when they ſhould be budded in the uſual way, and they will eaſily take. Seldom any other method than this is practiſed for raiſing Medlars; and the other ſorts, when growing on ſo firm a baſis as the White-thorn, will be larger, have a better look, and be more fertile in flowers and fruit.

7. The PYRACANTHA, OR EVERGREEN THORN, has been chiefly uſed to ornament or hide the ends of houſes, barns, ſtables, or other buildings that break in upon the view; and for this purpoſe no plant is better adapted, as by its evergreen leaves, cloſely ſet, it will not only keep from ſight whatever cannot regale that ſenſe, but will be to the higheſt degree entertaining by the profuſion of berries it will produce, and which will be in full glow all winter. But though the hiding as well as ornamenting of walls, &c. has been the chief uſe for this tree, it

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is with very good reaſon planted as an evergreen in ſhrubbery-quarters, where, notwithſtanding its branches againſt walls, &c. are very flexible, it will become ſtronger and more woody, and will diffuſe its leafy branches in an agreeable manner. The branches will be terminated with its fine fruit, which will glow in the quarters all winter, if they are not eaten by the birds; ſo that the tree before us is proper for any place. A further account of this ſhrub is almoſt needleſs, as it is well known; there being few towns which have not an houſe or two whoſe front is ornamented with them, being trained up to a great height; but when planted ſingly in quarters, though their ſtems naturally become ſtronger, they ſeldom grow higher than twelve or fourteen feet; and they will ſpread abroad their ſlender branches, and will often have a bushy, though not unpleaſing form." Theſe branches are covered with a ſmooth bark, which is of a dark-greeniſh brown colour, and often ſpotted with greyiſh ſpots; and they are often poſſeſſed of thorns, which, though not numerous, are ſharp and ſtrong. The leaves are ſpear-ſhaped, oval, and their edges are crenated. Their upper ſurface is ſmooth, and of a fine ſhining green; their under is paler; and they are produced in much plenty all over the ſhrub. The flowers are produced in bunches, like thoſe of the common Hawthorn; though they are ſmall, and not of ſo pure a white. They are often later before they are produced; and are ſucceeded by thoſe large delightful bunches, or berries, which are of a fiery red, and which are as ornamental in the winter as any that are produced on trees of the berry-bearing tribe.

This plant is eaſily PROPAGATED by the berries, or from layers. 1. The berries ſhould be ſown in any common garden-mould made fine, an inch deep; and theſe will remain two years before they appear: though if the berries are old ones (for they will often remain on the tree two years) they will frequently come up the ſucceeding ſpring. After the plants have ſtood one or two years in the ſeed-bed, in the ſpring they ſhould be planted out in the nurſery, at ſmall diſtances; and in about two years more they will be good plants, fit for any place. 2. They are eaſily propagated by layers; and this buſineſs ſhould be performed in the autumn, on the young ſhoots. A

gentle twiſt may be given them; though, if they are only laid down, and covered with earth, they will ſtrike root by the next autumn; nay, continues HANBURY, "I have known that, by ſome mould being accidentally thrown on a branch which was near the ground, roots have ſhot from almoſt every joint." Theſe layers ſhould be taken off any time in the winter; the ſtrongeſt will be fit for immediate uſe, while the weaker may be ſet in the nurſery, like the ſeedlings, and in a very little time they will grow to be good plants.

MORUS.

LINNEAN Claſs and Order, *Monoecia Tetrandria*: Male flowers containing four ſtamina, and female flowers containing two piſtils, upon the ſame plant; the male flowers being collected in a katkin. There are ſeven SPECIES; four of which are proper for our collection:

1. MORUS *Alba*: The WHITE MULBERRY, or the SILK-WORM MULBERRY; *a deciduous tree*; native of China, and cultivated almoſt univerſally for the feeding of ſilkworms.

2. MORUS *Nigra*: The BLACK MULBERRY, or the COMMON GARDEN MULBERRY; *a deciduous tree*; native of Perſia, and the maritime parts of Italy.

3. MORUS *Papyrifera*: The PAPER MULBERRY; *a low deciduous tree*; native of Japan.

4. MORUS *Rubra*: The VIRGINIA MULBERRY; *a low deciduous tree*; native of Virginia.

1. The WHITE or SILKWORM MULBERRY will grow to a large ſize: Its leaves are of a clear light green; and open conſiderably earlier in the ſpring than thoſe of the other ſpecies of Mulberry: Its fruit is alſo paler-coloured than that of the other ſorts, which makes this take the name of the White Mulberry. "This tree (ſays HANBURY) poſſeſſes the peculiar property of breeding no vermin either growing or cut down; neither does it harbour any ſort of caterpillar, the Silk-worm only excepted, whoſe

whoſe food is its leaves. The Mulberry-tree was very earneſtly recommended by King James to be planted in great quantities to feed theſe worms, in order to have ſilk of our own working: and, indeed, if we conſider what vaſt ſums the produce of ſilk brings into other ſtates, we might find an undertaking of this nature worthy of a princely care and aſſiſtance." The Mulberry delights moſt in a light dry ſoil; but there is very little land in this kingdom, generally ſpeaking, which might not be planted with theſe trees, and probably to great national advantage. Be this as it may, it is ſufficiently *ornamental* to be admitted into a large collection: And, beſides the *uſes* of its leaves to the Silk-worm, EVELYN and HANBURY recommend it very ſtrongly as a foreſt or timber-tree, and enumerate ſome of the uſes of its wood; none of them, however, ſufficiently ſtriking to induce us to recommend it to the planter's notice merely as a timber-tree.

2. The BLACK or GARDEN MULBERRY is principally cultivated for the fruit; and in ornamental plantations a few of them will be ſufficient, to make the collection general, as well as to be ready at all ſeaſons for the notice and obſervation of the Botaniſt.

There is a *variety* of it, with jagged leaves, which makes it eſteemed on that account; but the fruit is ſmaller than that of of the common ſort.

3. The PAPER MULBERRY is ſo called, becauſe the inhabitants where the trees grow naturally make paper of the bark. It will grow to the height of about thirty feet; and exhibits its fine large leaves of different ſhapes, many of them being divided into ſeveral lobes, whilſt others again are entire. They are of a fine ſtrong green colour, though the under ſurface is paler than the upper. The flowers, as has been obſerved, are male and female; and the females are ſucceeded by ſmall black fruit. It is the bark of the young ſhoots of which the paper is made; and for this uſe it is cultivated much in China, as well as Japan, where large plantations are raiſed. The plants are headed to within about a foot of the ground; and every year the crop of the ſummer's ſhoots is taken.

4. The VIRGINIA MULBERRY TREE will grow to be thirty or more feet high. It ſends forth many large branches;

and the bark of the young ſhoots is of a blackiſh colour. The leaves are larger than the Common Mulberry, and rougher; though in other reſpects they ſomewhat reſemble them. It produces plenty of katkins, in ſhape like thoſe of the Birch-tree; and the female flowers are ſucceeded by a dark reddiſh fruit. This is a very ſcarce plant at preſent; and is coveted by none but thoſe who are deſirous of making their collection general.

Theſe ſeveral ſpecies of Mulberry may be PROPAGATED from ſeeds, by layers, and from cuttings. 1. Where the ſeeds can be procured, it is the moſt expeditious way of raiſing great quantities; and whoever has a correſpondence in the South of France, or in Italy, may through that channel obtain them. Having the ſeeds ready, let a fine warm border of rich mellow earth be prepared, and let this border be hooped, in order to ſupport mats to defend the young plants, when they appear, from froſts. If no ſuch border can be eaſily had, it will be proper to make a gentle hot-bed, and cover it with fat mould: This alſo muſt be hooped, as the border. Then ſow the ſeeds in little drills, about a quarter of an inch deep. The middle of March is the beſt time for this work; and when the young plants appear, which will be in about ſix weeks, they muſt be conſtantly covered with the mats in the night, if any appearance of froſts preſents itſelf, as there often is at that ſeaſon. During the ſummer they ſhould be kept clear from weeds, and covered from the extreme heat of the ſun while the hot months continue. Whenever any cloudy or rainy weather approaches, the mats ſhould be always taken off, that the plants may enjoy the benefit of it. By thus carefully nurſing the beds, keeping them clear from weeds, watering the plants in dry ſeaſons, covering them from the parching ſun, and uncovering them again in the night, cloudy or rainy weather, the plants by autumn will be got pretty ſtrong; tho' not ſo ſtrong as to be left to themſelves. The following winter they will require ſome care. When the froſts approach they muſt be carefully covered with the mats, as in the ſpring; for without this protection, many of them would be deſtroyed, and the greateſt part killed, at leaſt down to the ground. In this bed they may ſtand two years, when they will be ſtrong enough to plant out in the nurſery. The ground for this purpoſe being double dug, the young plants ſhould be ſet in rows, at two feet and a half diſtance,

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and one foot and a half aſunder in the rows. Here they may remain till they are of a ſufficient ſize to be finally planted out. 2. Another method of propagating this tree is by layers. Whoever has not the conveniency of obtaining the ſeeds, muſt procure a number of plants to be planted for ſtools. The ground on which theſe ſtools are to ſtand ſhould be double dug, and the trees may be planted for this purpoſe two yards aſunder. The ſize of the ground, and the quantity of trees for the ſtools, muſt be proportioned according to the number of plants wanted; though the reader ſhould obſerve, that a few ſtools will ſoon produce many layers, as they throw out plenty of young branches, when the head is taken off. Having a ſufficient quantity of ſtools that have ſhot forth young wood for layering, in the beginning of winter perform this buſineſs, as follows: Let the earth be excavated around each ſtool, and let the preceding ſummer-ſhoot be ſlit at a joint, and laid therein; a peg would be proper, to keep them from being torn up, and the fine mould ſhould fill the interſtices; the ground muſt be levelled, and the young twigs cut down to one eye above the ſurface, that it may juſt appear above the ground. Such is the method of layering this tree; and whoever performs the operation in this manner, will find in the autumn following, that the plants will have all taken good root, and made a conſiderable ſhoot in the ſtem. Theſe plants will be now ready for the nurſery-ground, in which they ſhould be planted and managed in the ſame way as the ſeedlings. The ſtools, the ſecond year after, will have exhibited a freſh crop of young wood for layering: And thus may this operation be performed every ſecond year, till the deſired quantity is raiſed. 3. By *cuttings* alſo all the ſorts may be propagated, and this may be done two ways: By *cuttings planted in autumn*. Theſe ſhould be ſtrong ſhoots of the laſt year's wood; and if the tree to be encreaſed is not in ſo flouriſhing a ſtate as to make ſuch ſhoots, it ſhould be headed the year before, and you will have cuttings proper for your purpoſe. The ſtrongeſt ſhoots are the beſt; and October is the beſt month for the buſineſs. They ſhould be a foot and a half long, and muſt be planted a foot deep, in a ſhady well-ſheltered place, and a moiſt ſoil well worked and fine: By this method many good plants may be raiſed. Theſe trees may alſo be encreaſed by

cuttings

cuttings planted in the ſummer. The latter end of June, or the beginning of July, is a proper time for the work, and the management muſt be as follows: Having a ſufficient number of pots ready, the cuttings, or rather ſlips, from the trees, ſhould be gathered, and planted in theſe pots, in any ſort of common garden mould made fine. After this, they ſhould have a good watering, and the pots be plunged up to their rims in the ſtove. Here, if water and ſhade be conſtantly afforded them, they will ſtrike root and become good plants. It may be proper to obſerve farther in this place, that cuttings planted in pots in March, and managed this way, will readily grow. After they have ſtruck root, they may be hardened by degrees to the open air. They ſhould remain under cover in the pots all winter; for they will be rather tender at firſt, by being ſo nicely nurſed; but in the ſpring, when all danger of froſt is over, they may be turned out, with the mould, either in nurſery-lines at a foot diſtance and two feet aſunder in the rows, or elſe in the places where they are deſigned to remain; for they will be hardy enough, after growing openly this ſummer, to be in little danger of ſuffering by almoſt any weather.

MYRICA.

LINNEAN Claſs and Order, *Dioecia Tetrandria:* Male flowers containing four ſtamina, and female flowers containing two piſtils; upon diſtinct plants. There are ſix SPECIES; two of which are of a fragrant quality, and may be admitted into ſhrubbery quarters.

1. MYRICA *Cerifera:* The CANDLEBERRY-MYRTLE, or WAX-BEARING MYRICK; *a deciduous ſhrub*; native of Carolina, Virginia and Pennſylvania.

2. MYRICA *Gale:* The GALE, or DUTCH MYRTLE, or SWEET WILLOW; *a low deciduous ſhrub*; native of heathy bogs in many parts of England, and alſo of moſt of the northern parts of Europe.

1. CAN-

1. CANDLEBERRY-MYRTLE is a ſhrub about five feet in growth. Many ſlender branches are produced from the ſtalk: They are tough, ſmooth, and of a yellowiſh brown, having the older ſpotted with grey ſpots. The leaves grow irregularly on them all round; ſometimes by pairs, ſometimes alternately, but generally at unequal diſtances. They are of a lanceolated figure; and ſome are ſerrated at the top, whilſt others have their edges wholly entire. They ſtand on very ſhort footſtalks; having their upper ſurface ſmooth, and of a ſhining green colour, whilſt their under is of a more duſky hue. The branches of the old plants ſhed their leaves in the autumn; but the young plants, raiſed from ſeeds, retain them the greateſt part of the winter; ſo as during that ſeaſon to have the appearance of an evergreen. But this beauty will not be laſting; for they ſhed their leaves proportionally earlier as the plants get older. There are both male and female trees of this ſort: The flowers are ſmall, of a whitiſh colour, and make no figure; neither does the fruit that ſucceeds the female, which is a ſmall, dry, blue berry, though produced in cluſters, make any ſhow: So that it is from the leaves this tree receives its beauty and value; for theſe being bruiſed, as well as the bark of the young ſhoots, emit the moſt refreſhing and delightful fragrance, that is exceeded by no Myrtle, or any other aromatic ſhrub.

There is a *variety* of this ſpecies, of lower growth, with ſhorter but broader leaves, and of equal fragrance. This grows commonly in Carolina; where the inhabitants collect, from its berries, a wax, of which they make candles, and which occaſions its being called the *Candleberry-Tree*. It delights in a moiſtiſh ſoil.

2. The GALE, or SWEET WILLOW, is a ſhrub of about the ſame growth with the other. The branches are tough and ſlender, and covered with a ſmooth yellowiſh-brown bark. The leaves are of the ſame figure with the other, though not ſo large: They are placed in the ſame irregular manner on the branches; and when bruiſed, like them, emit a delightful and refreſhing ſcent. The flowers will appear in July, and the berries, which ſucceed them in cluſters, make no figure to any except a botaniſt; ſo that where that ſcience has no ſhare in

view,

view, it is on account of its fragrance that it is propagated. This ſort grows wild upon bogs, in many parts, particularly the northern parts of England; ſo that when it is deſigned to be in the ſhrubbery, the moiſteſt parts muſt be aſſigned it.

Both theſe ſorts may be PROPAGATED by ſeeds or layers. 1. The ſeeds of the Candleberry-Myrtle, and the Spleenwort-leaved Gale, we receive from abroad; thoſe of the Sweet Gale, from the bogs where they grow in England. The beſt way is to ſow them in boxes of earth from a rich paſture, well broken and fine. They ſhould be ſown about half an inch deep; and when the hot weather comes on, ſhould be ſet in the ſhade. They will often remain until the ſecond year before they come up, eſpecially thoſe ſeeds that come from abroad. If the boxes are ſet in the ſhade, and the plants come up, they will require no other trouble the firſt ſummer than keeping clean from weeds; in winter they ſhould be removed to a warm hedge or wall, where they may enjoy the benefit of the ſun. In the following ſpring they will come up in plenty. In the beginning of May they ſhould reſume their ſhady ſituation; and this ſummer they will require no other trouble than weeding and watering in dry weather. In the winter they ſhould be removed into a well-ſheltered place; and this may be repeated two years; when, in the ſpring, they ſhould be taken out of the boxes, and planted in the nurſery, at about a foot aſunder. 2. Theſe ſorts may be alſo eaſily propagated by layers; for this operation being performed on the young wood in the autumn, will occaſion them to ſhoot good roots by the autumn following; many of which will be good plants, fit for any place. 3. Theſe plants may likewiſe be encreaſed by ſuckers; for many of them often throw them out in vaſt plenty; ſo that theſe being taken out, the ſtrongeſt and beſt-rooted may be finally ſet out; whilſt the weaker, and thoſe with leſs root, may be planted in the nurſery.

NYSSA.

NYSSA.

LINNEAN Claſs and Order, *Polygamia Dioecia*: Male flowers containing ten ſtamina, and hermaphrodite flowers containing five males and one female each, upon diſtinct plants: There is only one SPECIES:

NYSSA *Aquatica*: The TUPELO-TREE; *a deciduous tree or ſhrub*; native of watery places in America.

The TUPELO comprehends two *varieties*:

The Entire-leaved Tupelo.

The Serrated-leaved Tupelo.

The *Entire-leaved Tupelo-Tree*, in its native country, will grow to be near twenty feet high; with us, its ſize will vary according to the nature of the ſoil or ſituation. In a moiſt rich earth, well ſheltered, it will bid fair for twenty feet; in others, that are leſs ſo, it will make ſlower progreſs, and will in the end be proportionally lower. The branches are not very numerous; and it riſes with a regular trunk, at the top of which they chiefly grow. The leaves are of a lanceolated figure, and of a fine light-green colour. They end in acute points, and are very ornamental, of a thickiſh conſiſtence, ſoft, grow alternately on pretty long footſtalks, and often retain their verdure late in the autumn. The flowers, which are not very ornamental, are produced from the ſides of the branches, growing ſometimes ſingly, ſometimes many together, on a footſtalk. They are of a greeniſh colour; and, in the countries where they naturally grow, are ſucceeded by oval drupes, incloſing oval, acute, furrowed nuts. In England, they ſeldom produce fruit.

The *Serrated-leaved Tupelo-Tree* grows uſually to be near thirty feet high, and divides into branches near the top like the other. The leaves are oblong, pointed, of a light-green colour, and come out without order on long footſtalks. The flowers come out from the wings of the leaves on long footſtalks. They are ſmall, of a greeniſh colour; and are ſucceeded by oval drupes, containing ſharp-pointed nuts, about the ſize of a French Olive.

The PROPAGATION of theſe ſorts is from ſeeds, which we receive from America. As ſoon as they arrive, they ſhould be

ſown

ſown in large pots of light ſandy earth, one inch deep. The gardener (who muſt not expect to ſee any plants come up the firſt ſpring), after this work is done, ſhould plunge his pots up to their rims in the natural ground; and if it be a moiſtiſh place, it will be the better. Weeding muſt be obſerved all ſummer; and a few furze-buſhes ought to be pricked round the pots in November, which will prevent the ground from freezing, and forward the coming-up of the ſeeds. In the next ſpring, the pots ſhould be plunged into an hot-bed, and after that the ſeeds will ſoon come up. As much air as poſſible, and watering, ſhould be afforded them; and they muſt be hardened ſoon, to be ſet out. The pots ſhould be then plunged to their rims again in the natural mould; where they may remain until October. Watering muſt be given them, and they ſhould alſo be ſhaded in the heat of the day. In October, they ſhould be houſed, with other greenhouſe plants, or elſe ſet under a hot-bed-frame, or ſome other cover, all winter. The third ſpring they ſhould be taken out of the larger pots, and each planted in a ſmaller, in which their growth may be aſſiſted by a gentle heat in a bed; but if they are planted up to the rims in a moiſtiſh place, and ſhaded in dry weather, they will grow very well. Though by this time they may have become hardy, yet it will be proper to ſhelter them the winter following in bad weather. They will require little more care during their ſtay in the pots, which may be either two, three, or more years, if they are large enough; when in ſome ſpring they may be turned out, with the mould, into the places where they are to remain, which ought always to be moiſt and well-ſheltered.

ONONIS.

LINNEAN Claſs and Order, *Diadelphia Decandria*: Each flower contains ten males and one female; the males being divided at the baſe into two diviſions: There are twenty-nine SPECIES; one of which, being of a ſhrubby nature, is proper for our purpoſe.

ONONIS *Fruticosa*: The SHRUBBY ONONIS, or PURPLE SHRUBBY REST-HARROW; *a low deciduous shrub*; native of the Alps and other mountainous parts of Europe.

The SHRUBBY ONONIS, or REST-HARROW, is a flowering-shrub of about a yard in growth. The branches are numerous, slender, and covered with a purplish-brown bark, having no spines. The leaves are trifoliate, grow irregularly on the branches, sit close, are narrow, spear-shaped, and their edges are serrated. The flowers come out in panicles from the ends of the branches: They are of the papilionaceous kind, and their general characters will indicate their structure. They stand on long footstalks, usually three on one. They are large, red, appear in May, and are succeeded by short turgid pods, which will have ripe seeds by July or August.

This sort may be PROPAGATED by the seeds. Common garden-mould of almost any soil, made fine, will do for the purpose. The beds should be made and the seeds sown in March, and covered about half an inch deep. In May the plants will appear; and all the summer they must be weeded, and duly watered in dry weather. In the spring they should be taken out of the seed-bed, and planted in the nursery, a foot asunder, where they may stand a year or two, and then be planted out for good. As the seeds of this sort ripen exceedingly well with us, a few may be sown in different parts of the garden, and sticks placed for a direction. Where there are too many come up to grow together, they may be drawn, and transplanted for other places, or thrown away, if plenty of seeds can always be had; and thus may these plants be raised in their proper places, without the trouble of removing.

PASSIFLORA.

LINNEAN Class and Order, *Gynandria Pentandria*: Each flower contains five males and three females; the males and females growing together at the base: There are twenty-eight SPECIES; one of which is proper for our collection:

PASSIFLORA

PASSIFLORA *Cærulea*: The PALMATED PASSION-FLOWER, or the COMMON PASSION-FLOWER; *a ligneous climber*; native of the Brazils.

The PASSION-FLOWER will climb to a prodigious height; MILLAR ſays, "to forty-feet, with ſtalks almoſt as large as a man's arm;" and adds, that it will make ſhoots of twelve or fifteen feet long in one ſummer. The leaves are palmated, being ſhaped like the hand; each is compoſed of five folioles, the middle one of which is, like the fingers of the hand, longer, and the reſt are ſhorter in the ſame proportion. Theſe folioles are ſmooth, and have their edges free from ſerratures, and all together form a fine leaf. The leaves grow from the joints, on ſhort footſtalks, from whence alſo the claſpers come out. From the joints, alſo, the flowers are produced, in July, Auguſt, and September. They are well known; and in ſome countries ſerve as monitors to the religious, as ſhewing the inſtruments of our Bleſſed Saviour's Paſſion; for they bring in the leaves of ſome of the ſorts to repreſent ſome part of it, and the contorted cirrhi for the flagella with which he was ſcourged.

This extraordinary plant is very eaſily PROPAGATED; for it takes freely either by cuttings, layers, or ſeeds. 1. By cuttings. Theſe ſhould be planted in a moiſt rich ſoil, at the beginning of March. The beds ſhould be immediately hooped, and every day, during the drying March winds and ſun, ſhould be covered with mats; and all that time they ſhould have frequent waterings in the evening. In moiſt, hazy, or cloudy weather, they ſhould be conſtantly uncovered; and with this management many of them will ſtrike root. If, through the heat of ſummer, the mats be applied, and evening waterings continued, the plants being thus kept cool and moiſt, will ſhoot to be good ones by the autumn. During the winter, the mats muſt be applied in froſty weather; and in the ſpring they may be ſet out to ſtand. 2. Good plants are obtained by layers; for theſe being laid in the ground in the ſpring, will have ſtruck root, and be good plants for removing the ſpring following. 3. By ſeeds. Theſe ſhould be ſown in pots filled with fine ſandy ſoil, from a rich meadow; and theſe plunged up to the rims in a ſhady border. In theſe pots they will readily come up; and at the approach of winter ſhould be removed into the greenhouſe, or ſet under an hot-bed-frame. In the ſpring following they may

may reſume their old place; and the ſpring after that may be ſet out for good.

The after-management will be, if planted to climb up trees in warm well-ſheltered places, to take away the dead ſhoots in the ſpring that have been killed by the froſts; for theſe will not only appear unſightly, but by ſhortening the branches it will cauſe them to ſhoot ſtronger and flower better. If planted againſt high walls, they muſt be conſtantly nailed up as they ſhoot, and in the ſpring following the branches muſt be ſhortened, and the others taken away. If they be reduced to about a yard or four feet in length, and all weak ſhoots cut out, you will be pretty ſure of having plenty of good bloom the ſummer after. This ſort is ſucceeded by a large, oval, yellow fruit, which alſo looks well. As this plant is rather tender, and requires mats to be nailed before it in very hard froſt, theſe mats muſt be always taken off immediately on the alteration of weather; for otherwiſe the ſtems will grow mouldy, and be deſtroyed that way. And as it is uſual to lay ſtraw, dung, &c. about the ſtems to prevent the froſt penetrating the ground, this dung, &c. muſt not be laid up to the ſtem ſo as to touch it, but all round it; for if it is laid up to the ſtem, the bark will be deſtroyed, and the tree killed, and alſo very little chance remain of the root's throwing out freſh ſhoots, as it often does when the plant is killed down to the ground.

PERIPLOCA.

LINNEAN Claſs and Order, *Pentandria Digynia*: Each flower contains five males and two females: There are five SPECIES; one of which is ſufficiently hardy for this climate.

PERIPLOCA *Græca*: The PERIPLOCA, or VIRGINIA SILK, or CLIMBING DOG'S BANE; *a ligneous climber*; native of Syria.

The PERIPLOCA is a fine climbing plant, that will wind itſelf with its ligneous branches about whatever tree, hedge, pale, or pole is near it; and will ariſe, by the aſſiſtance of ſuch ſupport, to the height of above thirty feet; and where no tree or ſupport is at hand to wind about, it will knit or entangle itſelf together, in a moſt complicated manner. The ſtalks of the older branches, which are moſt woody, are covered with a dark-brown bark, whilſt the younger ſhoots are more mottled with

the different colours of brown and grey, and the ends of the youngeſt ſhoots are often of a light-green. The ſtalks are round, and the bark is ſmooth. The leaves are the greateſt ornament to this plant; for they are tolerably large, and of a good ſhining green colour on their upper ſurface, and cauſe a variety by exhibiting their under ſurface of an hoary caſt. Their figure is oblong, or rather more inclined to the ſhape of a ſpear, as their ends are pointed, and they ſtand oppoſite by pairs on ſhort footſtalks. Their flowers afford pleaſure to the curious examiner of nature. Each of them ſingly has a ſtar-like appearance; for though it is compoſed of one petal only, yet the rim is divided into ſegments, which expand in ſuch a manner as to form that figure. Their inſide is hairy, as is alſo the nectarium, which ſurrounds the petal. Four or five of the flowers grow together, forming a kind of umbel. They are of a chocolate colour, are ſmall, and will be in blow in July and Auguſt, and ſometimes in September. In the country where this genus grows naturally, they are ſucceeded by a long taper pod, with compreſſed ſeeds, having down to their tops.

The PROPAGATION of this climber is very eaſy; for if the cuttings are planted in a light, moiſt ſoil, in the autumn or in the ſpring, they will readily ſtrike root. Three joints at leaſt ſhould be allowed to each cutting: They ſhould be the bottom of the preceding ſummer's ſhoot; and two of the joints ſhould be planted deep in the ſoil.

Another, and a never-failing method is by layers; for if they are laid down in the ground, or a little ſoil only looſely thrown over the young preceding ſummer's ſhoots, they will ſtrike root at the joints, and be good plants for removing the winter following.

PHILADELPHUS.

LINNEAN Claſs and Order, *Icoſandria Monogynia:* Each flower contains about twenty males and one female: There are only two SPECIES:

1. PHILADELPHUS *Coronarius:* The COMMON SYRINGA, or the CUCUMBER-TREE, or the MOCK ORANGE; *a deciduous ſhrub*; native place uncertain.

2. PHI-

2. PHILADELPHUS *Inodorus:* The CAROLINA SYRINGA, or the SCENTLESS SYRINGA; *a tall deciduous ſhrub*; native of Carolina.

1. The COMMON SYRINGA admits of three remarkable *varieties:* Common Syringa, Double Syringa, and Dwarf Syringa.

The *Common Syringa*, or *Mock Orange*, is a very beautiful ſhrub, about ſix feet in growth: It ſends forth numerous branches from the root, which are brittle and full of pith. Theſe alſo ſend out others from their ſides that are ſhorter, ſtand generally oppoſite by pairs, and are alternately of contrary directions. Theſe younger ſhoots are ſlender, jointed, and covered, ſome with a ſmooth pale-brown bark, others with a ſmooth bark of a darker colour. The leaves are large, and placed oppoſite by pairs on ſhort footſtalks. They are of an oval, ſpear-ſhaped figure, of a ſtrong green colour, and have the flavour of a cucumber. Their edges are irregularly indented, their ſurface is rough, and they fall off early in the autumn. This ſhrub, by its flowers, makes a fine figure in May and June; for they are produced in cluſters both at the end and from the ſides of the branches. They are of a fine white colour, and exceedingly fragrant. The petals of which each is compoſed are large, and ſpread open like thoſe of the Orange; and then forming branches, which ſtand each on its own ſeparate ſhort footſtalk, and being produced in plenty all over the ſhrub, both at once feaſt the eye and the ſmell: The eye, by the pleaſing appearance it will then have; the ſmell, as the air at ſome diſtance will be replete with the odoriferous particles conſtantly emitted from thoſe fragrant flowers. Theſe flowers, however, are very improper for chimneys, water-glaſſes, &c. in rooms; for in thoſe places their ſcent will be too ſtrong; and for the ladies in particular, often too powerful.

The *Double-flowering Syringa* is a low variety of this ſpecies, ſeldom riſing to more than a yard high. The deſcription of the other belongs to this ſort, except that the leaves and branches are proportionally ſmaller and more numerous, and the bark of the ſhoots of a lighter brown. It is called the Double-flowering Syringa, becauſe it ſometimes produces a flower or two with three or four rows of petals; whereas, in general, the flowers, which are very few, and ſel-

dom produced, are ſingle. They are much ſmaller than thoſe of the other; and you will not ſee a flower of any kind on this ſhrub oftener perhaps than once in five years. It is hardly worth propagating on this account; ſo that a few plants only ought to be admitted into a collection, to be ready for obſervation.

The *Dwarf Syringa* is ſtill of lower growth than the other, ſeldom ariſing to more than two feet in height. The deſcription of the firſt ſort ſtill agrees with this; only that the branches and leaves are ſtill proportionally ſmaller and more numerous, and the bark is ſtill of a lighter brown. It never produces flowers.

2. The CAROLINA SYRINGA is the talleſt grower by far of any ſort of the Syringa, and makes the grandeſt ſhow when in blow; though the flowers are deſtitute of ſmell. It will grow to about fourteen feet in height; the branches are numerous and ſlender, and the bark on the young ſhoots is ſmooth and brown. The leaves alſo are ſmooth and entire, and placed oppoſite by pairs on longiſh footſtalks. The flowers, which are produced at the ends of the branches, are of a fine white colour, and, being larger than thoſe of the firſt ſort, have a noble look.

The PROPAGATION of all the ſorts is very eaſy: They are encreaſed by layers, cuttings or ſuckers. 1. The moſt certain method is by layers; for the young twigs being laid in the earth in the winter, will be good-rooted plants by the autumn following. 2. Theſe plants may be encreaſed by cuttings, which being planted in October, in a ſhady moiſt border, many of them will grow; though it will be proper to let thoſe of the Carolina ſort remain until ſpring, and then to plant them in pots, and help them by a little heat in the bed. By this aſſiſtance, hardly one cutting will fail. 3. They may be alſo encreaſed by ſuckers; for all the ſorts throw out ſuckers, though the Carolina Syringa the leaſt of any. Theſe will all ſtrike root, and be fit for the nurſery-ground: Nay, the Double-flowering and the Dwarf ſorts are always encreaſed this way; for theſe plants having ſtood five or ſix years, may be taken up and divided into ſeveral ſcores. All the plants, however, whether raiſed from layers, cuttings, or ſuckers, ſhould be planted in the nurſery-ground to get ſtrength, before they are ſet out for good. They ſhould be planted a foot aſunder, and the diſtance in the rows ſhould be two feet. After this, they will require no other

care

care than hoeing the weeds, until they have ſtood about two years, which will be long enough for them to ſtand there.

PHILLYREA.

LINNEAN Claſs and Order, *Diandria Monygynia:* Each flower contains two males and one female: There are three SPECIES:

1. PHILLYREA *Media:* The OVAL-LEAVED PHILLYREA, or MOCK PRIVET, or the MEDIAL-LEAVED PHILLYREA; *a tall evergreen ſhrub*; native of the South of Europe.

2. PHILLYREA *Latifolia:* The BROAD-LEAVED PHILLYREA, or MOCK PRIVET; *a tall evergreen ſhrub*; native of the South of Europe.

3. PHILLYREA *Anguſtifolia:* The NARROW-LEAVED PHILLYREA, or MOCK PRIVET; *a deciduous ſhrub*; native of Spain and Italy.

1. The OVAL-LEAVED or MIDDLE PHILLYREA has the following *varieties:* Common Smooth-leaved *Phillyrea*, Privet-leaved *Phillyrea*, Olive-leaved *Phillyrea*.

The *Common Smooth-leaved Phillyrea* will grow to be twelve or fourteen feet high, and the branches are many; the older of which are covered with a dark-brown bark, but the bark on the young ſhoots is of a fine green colour. They are oval, ſpear-ſhaped, and grow oppoſite, by pairs, on ſtrong ſhort footſtalks. The flowers are produced in cluſters, from the wings of the young branches. They are ſmall, and of a kind of greeniſh-white colour; they appear in March, and are ſucceeded by berries, which are firſt green, then red, and black in the autumn when ripe.

Privet-leaved Phillyrea will grow to be ten or twelve feet high, and the branches are covered with a brown bark. The leaves a little reſemble the Privet; they are of a fine green colour, and grow by pairs on the branches. They are of a lanceolate figure, and their edges are entire, or nearly ſo; for ſome ſigns of ſerratures ſometimes appear. The flowers grow

like others, in clusters, in March. They are whitish, and are succeeded by small black berries.

The *Olive-leaved Phillyrea* is the most beautiful of all the sorts. It will grow to be about ten or twelve feet high; and the branches, which are not numerous, spread abroad in a free easy manner, which may not improperly be said to give the tree a fine air. They are long and slender, and are covered with a light-brown bark; and on these the leaves stand opposite by pairs, at proper intervals, on short footstalks. They resemble those of the Olive-tree, and are of so delightful a green as to force esteem. Their surface is exceeding smooth, their edges are entire, and the membrane of a thickish consistence. The flowers are small and white, and like the other sorts make no show. They are succeeded by single roundish berries.

2. The BROAD-LEAVED PHILLYREA will grow to be about twelve feet high. The branches seem to be produced stronger and more upright than those of the former species. The bark is of a grey colour, spotted with white, which has a pretty effect; and the leaves grow opposite by pairs. They are of a heart-shaped oval figure, of a thick consistence, and a strong dark-green colour. Their edges are sharply serrated, and they stand on short strong footstalks. The flowers grow from the wings of the leaves in clusters, in March. They are of a kind of greenish-white colour, make no show, and are succeeded by small round black berries.

The *varieties* of this species are, the *Ilex*-leaved *Phillyrea*, the Prickly *Phillyrea*, the Olive *Phillyrea* with slightly-serrated Edges.

3. The NARROW-LEAVED PHILLYREA is of lower growth, seldom rising higher than eight or ten feet. The branches are few and slender, and they also are beautifully spotted with grey spots. The leaves, like the others, stand opposite by pairs. They are long and narrow, spear-shaped, and undivided, of a deep green colour, and of a thick consistence. Their edges are entire, and they also stand on short footstalks. The flowers, like the others, make no show. They are whitish, and grow in clusters from the wings of the branches, in March; and are succeeded by small round black berries.

The *varieties* of this species are, the Rosemary *Phillyrea*, Lavender *Phillyrea*, Striped *Phillyrea*, &c.

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The *Phillyreas* are to be PROPAGATED by ſeeds or layers. 1. By ſeeds. Theſe ripen in the autumn, and ſhould be ſown ſoon after. The mould muſt be made fine; and if is not naturally ſandy, if ſome drift ſand be added, it will be ſo much the better. The ſeeds for the moſt part remain until the ſecond ſpring before they come up; and if they are not ſown ſoon after they are ripe, ſome will come up even the third ſpring after. They muſt be ſown about an inch deep; and during the following ſummer ſhould be kept clean from weeds. After they are come up, the ſame care muſt be obſerved, and alſo watering in dry weather; and if the beds are hooped, and the plants ſhaded in the hotteſt ſeaſon, they will be ſo much the better for it. However, at the approach of winter they muſt be hooped, and the beds covered with mats in the hardeſt froſts, otherwiſe there will be danger of loſing the whole crop; for theſe trees, though they are very hardy when grown tolerably large, are rather tender whilſt ſeedlings. It will be proper to let them remain in the ſeed-beds, with this management, for two ſummers; and then, waiting for the firſt autumnal rains, whether in September or October (and having prepared a ſpot of ground), they ſhould at that juncturebe planted out, and this will occaſion them immediately to ſtrike root. The diſtance they ſhould be planted from each other need not be more than a foot, if they are not deſigned to remain long in the nurſery: If there is a probability of their not being wanted for ſome years, they ſhould be allowed near double that diſtance; and every winter the ground in the rows ſhould be well dug, to break their roots, and cauſe them to put out freſh fibres, otherwiſe they will be in danger of being loſt, when brought into the ſhrubbery-quarters. 2. By layers they will eaſily grow. The autumn is the beſt time for this operation, and the young ſhoots are fit for the purpoſe. The beſt way of layering them is by making a ſlit at the joint; tho' they will often grow well by a twiſt being only made. When the gardener chooſes the method of twiſting a young branch for the layers, he muſt be careful to twiſt it about a joint ſo as only to break the bark; for if it is too much twiſted, it will die from that time, and his expectations wholly vaniſh. But if it be gently twiſted with art and care, it will at the twiſted parts be preparing to ſtrike root, and

by the autumn following, as well as thoſe layers that had been ſlit, will have good roots; the ſtrongeſt of which will be fit for planting where they are wanted to remain, whilſt the weaker and worſt-rooted layers may be planted in the nurſery-ground like the ſeedlings, and treated accordingly.

PHLOMIS.

LINNEAN Claſs and Order, *Didynamia Gymnoſpermia*: Each flower contains four males and one female; two of the males being ſomewhat longer than the other two; and the ſeeds being naked. There are fourteen SPECIES; two of which are adapted to the ſhrubbery.

1. PHLOMIS *Fruticoſa*: The YELLOW PHLOMIS, or JERUSALEM SAGE; *a non-deciduous hoary ſhrub*; native of Spain and Sicily.

2. PHLOMIS *Purpurea*: The PURPLE PHLOMIS, or PORTUGAL SAGE; *a non-deciduous hoary ſhrub*; native of Portugal and Italy.

1. The YELLOW PHLOMIS, or JERUSALEM SAGE. The *varieties* of this ſpecies are, The Broad-leaved Sage-tree of Jeruſalem, The Narrow-leaved Jeruſalem Sage-tree, The Cretan Sage-tree.

The *Broad-leaved Jeruſalem Sage-tree* is now become very common in our gardens, which indeed is no wonder, as its beauty is great, and its culture eaſy. It will grow to be about five feet high, and ſpreads its branches without order all around. The older branches are covered with a dirty, greeniſh, dead, falling, ill-looking bark; and this is the worſt property of this ſhrub: But the younger ſhoots are white and beautiful; they are four-cornered, woolly, and ſoft to the touch. The leaves are roundiſh and oblong, and moderately large; and theſe grow oppoſite at the joints of the ſhrub on long footſtalks. They are hoary to a degree of whiteneſs, and their footſtalks alſo are woolly, white, tough, and ſtrong. The flowers are produced in June, July, and Auguſt, at the top joints of the young ſhoots,

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in large whorled bunches. They are of the labiated kind, each conſiſting of two lips, the upper end of which is forked, and bends over the other. A finer yellow can hardly be conceived than the colour of which they are poſſeſſed; and being large, they exhibit their golden flowers at a great diſtance, cauſing thereby a handſome ſhew.

The *Narrow-leaved Jeruſalem Sage-tree* is of lower growth than the other, ſeldom riſing higher than a yard or four feet. This ſhrub is in every reſpect like the other; only the ſhoots ſeem to have a more upright tendency of growth. The leaves alſo, which are narrower, are more inclined to a lanceolate form: They are numerous in both the ſorts, and hide the deformity of the bark on the older ſtems, which renders them leſs exceptionable on that account. In ſhort, theſe ſorts are qualified for ſhrubberies of all kinds, or to be ſet in borders of flower-gardens, where they will flower, and be exceeded even in that reſpect by very few ſhrubs.

Cretan Sage-tree is ſtill of lower growth than either of the former, ſeldom arriving to a yard in height. The leaves are of the ſame white, hoary nature; they are very broad, and ſtand on long footſtalks. The flowers are alſo of a delightful yellow colour, very large, and grow in large whorls, which give the plant great beauty.

2. Purple Phlomis, or Portugal Sage. The ſtalks of this ſpecies are woody, four feet high, and ſend forth ſeveral angular branches, which are covered with a white bark. The leaves are ſpear-ſhaped, oblong, woolly underneath, crenated, and grow on ſhort footſtalks. The flowers are produced in whorls, from the joints of the branches. They are of a deep purple colour, and have narrow involucra. They appear in June and July, but are not ſucceeded by ripe ſeeds in England.

There is a *variety* of this ſpecies, with iron-coloured flowers; and another with flowers of a bright purple.

There are ſome other ſhrubby ſorts of *Phlomis*, of great beauty; but theſe not only often loſe their leaves, and even branches, from the firſt froſt, but are frequently wholly deſtroyed, if it happens to be ſevere. They are low ſhrubs, very beautiful, and look well among perennial flowers, where they will not only claſs as to ſize with many of that ſort, but, being rather

rather tender, may with them have ſuch extraordinary care as the owner may think proper to allow them.

The PROPAGATION of the above ſorts is very eaſy, either by layers or cuttings. 1. If a little earth be thrown upon the branches, any time in the winter, they will ſtrike root, and be good plants by the autumn following, fit for any place. Thus eaſy is the culture by that method. 2. The cuttings will alſo grow, if planted any time of the year. Thoſe planted in winter ſhould be the woody ſhoots of the former ſummer: Theſe may be ſet cloſe in a ſhady border; and being watered in dry weather, will often grow. This ſhrub may be propagated by young ſlips, alſo, in any of the ſummer months. Theſe ſhould be planted in a ſhady border, like Sage, and well watered. If the border is not naturally ſhady, the beds muſt be hooped, and covered with matting in hot weather. Watering muſt be conſtantly afforded them; and with this care and management many of them will grow.

PINUS.

LINNEAN Claſs and Order, *Monoecia Monadelphia*: Male flowers containing many ſtamina joined at the baſe, and female flowers containing one piſtil, upon the ſame plant; the males being diſpoſed in ſcaly bunches, the females in imbricated cones: There are twelve SPECIES:

1. PINUS *Larix*: The LARCH, or DECIDUOUS PINE; *a tall deciduous tree*; native of Switzerland, the Alps, and ſome parts of Italy.

2. PINUS *Sylveſtris*: The WILD PINE; *a tall evergreen tree*; native of Scotland and the northern parts of the continent of Europe.

3. PINUS *Strobus*: The WEYMOUTH-PINE, or the WHITE PINE; *a tall evergreen tree*; native of New-England, Virginia, Canada, and Carolina.

4. PINUS *Pinea*: The STONE-PINE; *a tall evergreen tree*; native of Spain and Italy.

5. PINUS

5. PINUS *Cembra:* The CEMBRO, or the CEMBRO-PINE; *an evergreen tree*; native of Switzerland, the Alps, Siberia, and Tartary.

6. PINUS *Tæda:* The SWAMP PINE; *a tall evergreen tree*; native of the ſwamps of Virginia and Canada.

7. PINUS *Cedrus:* The CEDAR OF LEBANON; *a tall evergreen tree*; native of Mount Lebanon.

8. PINUS *Picea:* The YEW-LEAVED FIR; *a tall evergreen tree*; native of Scotland, Sweden, and Germany.

9. PINUS *Abies:* The EUROPEAN SPRUCE-FIR; *a tall evergreen tree*; native of the northern parts of Europe and of Aſia.

10. PINUS *Canadenſis:* The AMERICAN SPRUCE-FIR, or the NEWFOUNDLAND SPRUCE-FIR; *a tall evergreen tree*; native of Canada, Pennſylvania, and other parts of North America.

11. PINUS *Balſamea:* The HEMLOCK-FIR; *a low evergreen tree*; native of Virginia and Canada.

12. PINUS *Orientalis:* The ORIENTAL FIR; *a low evergreen tree*; native of the Eaſt.

1. The LARCH. This is a lofty tree: its branches are ſlender, and incline downward: the leaves are of a light green; and, like the Cedar of Lebanon, are bunched together like the pencils or little bruſhes of the painter. In ſpring, when the leaves and flowers are breaking out, the Larch has a particularly elegant appearance; and in winter, it gives variety to a wooded ſcene by a remarkableneſs in its naked branches. It is in good eſteem as an *Ornamental*; and its timber is of the more *uſeful* kind: it is ſuperior to that of moſt of the *Pinus* tribe. HANBURY ſays, "Many encomiums have been beſtowed on the timber of the Larch: and we find ſuch a favourable account of it in antient authors, as ſhould induce us to think it would be proper for almoſt any uſe. Evelyn recites a ſtory of Witſen, a Dutch writer, that a ſhip built of this timber and Cypreſs, had been found in the Numidian ſea, twelve fathoms under water, ſound and entire, and reduced to ſuch a hardneſs as to reſiſt the ſharpeſt tool, after it had lain ſubmerged above a thouſand four hundred years. Certain it is, this is an excel-

lent

lent wood for ſhip and houſe building. At Venice this wood is frequently uſed in building their houſes, as well as in Switzerland, where theſe trees abound: So that, without all doubt, the Larch excels for maſts for ſhips, or beams for houſes, doors, windows, &c. particularly as it is ſaid to reſiſt the worm.

"In Switzerland, their houſes are covered with boards of this wood, cut out a foot ſquare; and as it emits a reſinous ſubſtance, it ſo diffuſes itſelf into every joint and crevice, and becomes ſo compact and cloſe, as well as ſo hardened by the air, as to render the covering proof againſt all weather. But as ſuch covering for houſes would cauſe great devaſtation in caſe of fire, the buildings are confined to a limited diſtance, by an order of police from the magiſtrates. The wood, when firſt laid on the houſes, is ſaid to be very white; but this colour, in two or three years, is changed, by means of the ſun and reſin, to a black, which appears like a ſmooth ſhining varniſh."

Of the *Common Larch* there are ſeveral *varieties*. The flowers which the commoneſt ſort exhibits early in the ſpring are of a delicate *red* colour; another ſort produces *white* flowers at the ſame ſeaſon, and theſe have a delightful effect among thoſe of the Red ſort; whilſt another, called the *Black Newfoundland Larix*, encreaſes the variety, tho' by an aſpect little differing from the others. There are alſo Larches with *greeniſh* flowers, *pale-red*, &c. all of which are accidental varieties from ſeeds. Theſe varieties are eaſily diſtinguiſhed, even when out of blow: The young ſhoots of the White-flowering Larch are of the lighteſt green, and the cones when ripe are nearly white. The Red-flowering Larch has its ſhoots of a reddiſh caſt, and the cones are of a brown colour; whilſt the cones and ſhoots of the Black Newfoundland Larch are in the ſame manner proportionally tinged. The cones, which are a very great ornament to ſeveral ſorts of the Pines, are very little to theſe. Their chief beauty conſiſts in the manner of their growth, the nature and beauty of their pencilled leaves, and fair flowers; for the cones that ſucceed them are ſmall, of a whitiſh, a reddiſh, or a blackiſh brown colour, and make no figure.

The method of PROPAGATION is from ſeed: The cones may be gathered in November, and ſhould be left in a dry place till the ſpring. Juſt before ſowing, let the cones be opened or torn

into

into four quarters by a knife, the point of which muſt be thruſt exactly down the center, ſo that the ſeeds in their reſpective places may not be damaged. Formerly, great pains were beſtowed in getting at the ſeeds, by cutting off the ſcales of the cones ſingly, and letting the ſeeds drop. This occaſioned great expence to thoſe who wanted a quantity of ſeeds; ſo that it is wholly laid aſide now, for the more eaſy method of opening them with knives, and then threſhing them. A certain price is generally allowed per thouſand to the poor for opening them. When a ſufficient quantity is opened, they ſhould be threſhed in a room, which will divide the ſcales, and diſlodge the ſeeds, without injuring many of them. Three thouſand cones will generally produce about a pound of good ſeeds. The cones being ſufficiently broken, and the ſeeds threſhed out, they ſhould be winnowed or ſieved, to have clear ſeeds; after which they will be ready for ſowing. Let the ſeminary conſiſt of a ſpot of fine light earth; and let the ſeeds be ſowed in beds a quarter of an inch deep. In the ſpring, when the plants appear, they ſhould be gently refreſhed with water in dry weather, and carefully kept clean of weeds during the whole ſummer. By the autumn they will not have ſhot more than an inch or two; and in ſpring they ſhould be pricked out in beds about three inches aſunder. The ſpring following, they muſt be taken out of theſe beds with care, and planted in the nurſery-ground, three feet aſunder in the rows, and two feet diſtance; and here they may remain until they are fit to be planted out finally, which will be about the ſecond or third year after. If they grow well in the nurſery, it is adviſeable to plant them where they are to continue after having attained two years ſtrength in that place, if the ground can poſſibly be prepared for their reception; ſince theſe trees always thrive beſt when removed ſmall from the nurſery, if they are of a ſufficient ſize not to be injured by the weeds; if they are ſmaller, the owner muſt keep them clean. The Larch-tree will grow extremely well on almoſt any ſoil, as well in clays as in other ſorts; it thrives amazingly on the declivities of hills, and ſides of high mountains; it is hardy enough to reſiſt the ſevereſt cold, therefore proper for all expoſed places: And, as the timber is ſo valuable, and its growth ſo quick, it is a tree which may be propagated to the great advantage of the owner.

2. The

2. The WILD PINE. This ſpecies includes two *varieties*: The Scotch Fir and the Pineaſter.

The *Scotch Fir*. This tree is too well known to require any deſcription: and the method of propagating it will be fully treated of under the Article TIMBER GROVES.

The *Pineaſter*. This is a large timber-tree, and naturally throws out very large arms, ſome of which will be nearly horizontal. "Some people think theſe trees are very ornamental on their account; for in the winter eſpecially they appear naked, and are of a yellowiſh colour; and being ſpread abroad thus large, and without order, in the mixture of the more regular ſorts of growing Firs, they make a good contraſt. The Gardener muſt obſerve, that the leaves of this ſort are very large and long, and of a lighter green than thoſe of the Scotch Fir, which is another circumſtance to direct him to its ſituation; and he muſt alſo obſerve, that thoſe long and large leaves which ornament the younger branches only, give the tree a majeſtic air; and as the larger arms appear naked to view, ſo the younger, being thus plentifully furniſhed, have a noble effect, beſides what beauty it receives from its numerous cones." HANBURY.

Its PROPAGATION may be the ſame as that of the Scotch Fir.

3. The WEYMOUTH PINE. This is a princely tree, majeſtic and elegant in the higheſt degree: HANBURY ſays, "it will grow to more than a hundred feet high, and makes ſuch excellent maſts for ſhips, that the Legiſlature in the reign of Queen Anne enacted a law enforcing the encouragement of the growth of theſe trees in America, where they abound." As an *Ornamental* it ſtands firſt of all the Pines, and in the *uſes* of its wood none of them excel it. The bark is ſmooth and ſoft to the touch, and though of a duſky brown colour, on the whole has a delicate look. The leaves are truly ornamental, though their colour is nothing extraordinary; but they are long and ſlender, and are formed into taſſels, which hang in ſo eaſy and elegant a manner, as "to make one in love with the tree."

The PROPAGATION of the Weymouth Pine is not ſo difficult as has been heretofore underſtood: It may be raiſed in common ſeed-beds with ordinary care. HANBURY gives us the following directions "The ſeeds of the Weymouth Pine are larger than

than thoſe of the Scotch Fir; and in order to raiſe the young plants, it will be proper to ſow them in pots or boxes, which may be removed into the ſhade after the plants are come up, when the ſun's rays are violent. If they are ſown in beds of fine light earth, they ſhould be hooped, and conſtantly covered with mats from the ſun's heat, and as carefully uncovered when he ſets. In about ſix or ſeven weeks after ſowing, the young plants will appear, when they ſhould be regularly guarded from birds, otherwiſe all your ſeeds, time, and trouble, will be loſt; for if the birds take to them at their firſt coming up, and are unmoleſted, they will not leave a ſingle plant. The plants being now above ground, the weeds ſhould be conſtantly picked out, as they appear, leſt the fibres of their roots mixing with thoſe of the Firs, many of the latter may be drawn out with them. In dry weather they ſhould be refreſhed with water: But this muſt be done ſparingly, and with the utmoſt caution; for as the ſtems of the young plants are very ſlender, by overwatering they are frequently thrown aſide, which they hardly ever recover. Thus, continues HANBURY: "I have known gentlemen, who, in attempting to raiſe theſe trees, have ſeen the young plants go off without perceiving the cauſe; and the more watering and pains they have taken, have found the plants perſiſt in this way more and more, to their great mortification and aſtoniſhment. In the ſpring following theſe plants ſhould be pricked out in beds half a foot aſunder each way; and here they may ſtand two years, when they may be either finally planted out, or removed into the nurſery, at the diſtance of one foot aſunder, and two feet in the rows. If care has been taken of them in the nurſery, they may be removed at a conſiderable height with great aſſurance of ſucceſs: for it is much eaſier to make this Pine grow than any of the other ſorts: So that where they are wanted for ornament in parks, open places, &c. a ſhow of them may be made in a little time.

"The ſoil the Weymouth Pine delights in moſt is a ſandy loam; but it likes other ſoils of an inferior nature: and altho' it is not generally to be planted on all lands, like the Scotch Fir, yet I have ſeen it luxuriant and healthy, making ſtrong ſhoots, on blue and red clays, and other ſorts of ſtrong ground. On ſtony and ſlaty ground, likewiſe, I have ſeen ſome very fine

trees:

trees: So that I believe whoever is desirous of having plantations of this pine, need not be curious in the choice of his ground."

4. The STONE PINE will not grow to the height of the former; and the bark is rough, and on some trees of a reddish colour. The leaves are long, very ornamental, and of a fine sea-green colour. The cones give this tree the grandest look; for they are sometimes near six inches long, and are large, thick, and turbinated. The scales are beautifully arranged, and the whole cone is large and curious. "The kernels are eatable, and by many preferred to almonds; in Italy they are served up at table in their desserts; they are exceeding wholesome, being good for coughs, colds, consumptions, &c. on which account only this tree deserves to be propagated. HANBURY continues, It may be very proper here to take notice of a very great and dangerous mistake Mr. Miller has committed, by saying, under this article of Stone-Pine, that seeds kept in the cones will be good, and grow, if they are sown ten or twelve years after the cones have been gathered from the trees; whereas the seeds of this sort, whether kept in the cones or taken out, are never good after the first year; and though sometimes a few plants will come up from the seeds that are kept in the cones for two years before, yet this is but seldom; neither must a tenth part of a crop be expected. This caution is the more necessary, as several gentlemen who had cones, upon reading Mr. MILLER's Book, and finding the seeds would take no damage when kept there, deferred the work for a season or two, when they thought they should have more conveniency either of men or ground for their purpose; and were afterwards wholly disappointed, no plants appearing, the seeds being by that time spoiled and worth nothing."

The PROPAGATION of the Stone Pine is from the seeds, which may be procured from their large cones by the help of a vise; for this will so effectually break the cones, without hurting the seeds, that they may be taken out with pleasure. The cones should be fresh, not older than a year or two at farthest, or the seeds will not be good; for although it has been asserted, that the seeds of Pines in general will keep in their cones many years, yet the cones of this species of Pine are an exception, as the seeds

ſeeds are rarely found good after the cones are one year old. The ſeaſon for ſowing theſe ſeeds is the middle of March. The weather being fine, and the ground fit for working, they ſhould be ſown about half an inch deep, in beds of fine light earth. In about ſeven weeks the plants will appear, which muſt be kept clean of weeds, and now and then watered in dry weather till July, by which time they will have made a tolerable ſhoot. In the month of July they ſhould be taken out of the ſeed-beds, and pricked in others four inches aſunder. Rainy and cloudy weather muſt be made choice of for this work; and after they are planted, the beds ought to be hooped, in order to be covered with mats in the heat of the day, which, however, ſhould be always uncovered in the night. When they have taken to the ground, farther covering will be needleſs; and here they may remain, with only now and then watering, and keeping them clear of weeds, till the ſpring twelvemonth following; when, in the beginning of April, they ſhould be planted out in the nurſery, in well prepared ground, a foot aſunder, and at two feet diſtance in the rows. Here they may ſtand two years, and then ſhould be finally planted out. But if the trees are deſired to be larger before they are brought to the ſpot where they are to ſtand, they muſt be kept conſtantly removing every two years in the nurſery; for without this management this is a very difficult tree to be improved.

The Stone-Pine delights in a ſandy loam; though, like moſt other Pines, it will grow well in almoſt any land.

5. The Cembro-Pine is a fine tree, though of lower growth than any of the former, and the leaves are very beautiful; for they are of a lighter green than moſt of the ſorts, and are produced five in a ſheath. They are pretty long and narrow; and as they cloſely ornament the branches all round, they look very beautiful, and render the tree on their account valuable. The cones of theſe trees alſo on their waving heads, have a good effect; for they are larger than thoſe of the Pineaſter, and the ſquamæ are beautifully arranged.

6. The Swamp-Pine. Of this ſpecies there are many *varieties*: Hanbury gives us the following account of them:

"The *Three-leaved American Swamp-Pine* is a very large-growing tree, if it has the advantage of a moiſt ſituation. The leaves are of a fine green colour, and are exceeding long,

ſlender, and beautiful; three iſſue out of one ſheath, and they cloſely garniſh the younger branches. This is a tree worthy of propagation, whether we regard its timber, or its fine appearance when growing. Its timber is ſaid to be equal in value to that of moſt ſorts of the Pine; and beſides the beauty it receives from its fine long three-ſheathed leaves, its head will be ornamented with very large cones, the good effect of which may be eaſily conceived.

"The *Two-leaved American Pine* will grow to be a large tree, and the leaves are long; two only grow in each ſheath, which occaſions its being ſo diſtinguiſhed. The leaves are of a lighter colour than many of the others. On the whole, it is a fine tree, but will make very little variety, unleſs cloſely examined. The cones of this ſort are much larger, and the ſcales more beautifully arranged, than thoſe of the Scotch Fir, though they are not of the ſize of the former ſort. This Fir alſo likes a moiſt ſoil.

"The *Yellow American Pine*, the *Yellow Tough Pine*, and the *Tough Pine of the Plains*, I received by thoſe names: There is ſome difference in the ſize and ſhape of the cones, though that ſeems inconſiderable. Theſe three ſorts make very little variety among themſelves; for they have nearly the ſame manner of growth; and though I have none that are yet grown to any large ſize, yet they all ſeem to have a tendency to throw out large arms, a little like the Pineaſter. How valuable the timber may be, I cannot tell; but the younger ſhoots of all of them are exceeding tough, and, had we plenty, would make excellent bands for faggoting. The leaves are long, and of a yelloviſh green colour; there are three, and ſometimes two only in a ſheath. If a large quarter of theſe were to be planted, to be ſeen at a diſtance, by any of the darker-coloured ſorts of Pines, their very different ſhade muſt have a delightful effect.

"*Baſtard Pine* is another ſort we receive from America, tho' it differs very little from ſome of the other American ſorts. The leaves are long and ſlender; ſometimes two and ſometimes three grow in each ſheath. They are generally of a yelloviſh colour towards their baſe, though their ends are green. The cones are rather long and ſlender, and the ends of the ſcales are ſo pointed, as to occaſion its being called by ſome the Prickly-coned Pine.

"*Frank-*

"*Frankincenſe-Pine* is another American ſort, which we receive under that name. The leaves of it are long, and of a fine green colour. They are narrow, and three are contained in each ſheath. They cloſely ornament the younger branches all around. This tree, however, beautiful as it is on their account, makes little variety among the Pines, for many others look like it; but by the cones it makes a ſtriking difference; for theſe are exceeding large, even as large as thoſe of the Stone-Pine; but their ſcales are looſer, and their arrangement is not quite ſo beautiful.

"The *Dwarf-Pine*, as its name imports, is the leaſt grower of all the ſorts of Pines. It is an American plant, and the leaves grow two in a ſheath; theſe are ſhort, and of a pretty good green colour. This ſort is coveted by ſome, on account of its low growth; but it is the leaſt beautiful of any of the Pines, and has naturally a ſhabby look. The cones are ſmall, and the ſcales are pointed. There is very little in the plant to make it deſirable.

"There are many other ſorts of American Pines, which we receive from thence with the like cant names as thoſe of the above, which I have choſe to retain, as they will probably be continued to be ſent over, and that the Gardener receiving them as ſuch may beſt know what to do with them. In many of thoſe ſorts I ſee at preſent no material difference, ſo am induced to think they are the ſame, ſent over with different names. Some of the ſorts above-mentioned differ in very few reſpects; but I have choſe to mention them, as a perſon may be ſupplied with the ſeeds from Pennſylvania, Jerſey, Virginia, Carolina, &c. where they all grow naturally: and having once obtained the ſeeds, and from them plants, they will become pleaſing objects of his niceſt obſervations."

Theſe may all be propagated in the ſame manner as the WEYMOUTH.

7. The CEDAR of LEBANON. This, in its native ſoil, has always been conſidered as the moſt majeſtic tree in nature. The leaves grow in pencils like thoſe of the Larch; and the extremities of its branches are likewiſe declining as thoſe of the Deciduous Pine; to which at firſt ſight it bears a ſtrong reſemblance; excepting in that it is leſs lofty and more ſpreading. There are ſome very fine Cedars of Lebanon in Stow Gardens. It ranks

among the firſt of the *ornamental* tribe: and the *uſe*, of its timber are univerſally acknowledged. HANBURY enumerates the following: "It was greatly uſed in the building of Solomon's temple, which at once convinces us of its ſuperlative excellence. It is ſaid to continue ſound for two thouſand years; and we are told, that in the Temple of Apollo at Utica there was found cedar-wood of that age. The magnificent temples of the Pagans, as well as thoſe of the true God, were chiefly built of this famous timber. The ſtatue of the Great Goddeſs at Epheſus was made of this material; and if this tree abounded with us in great plenty, it might have a principal ſhare in our moſt ſuperb edifices. The effluvia conſtantly emitted from its wood are ſaid to purify the air, and make rooms wholeſome. Chapels and places ſet apart for religious duties, being wainſcotted with this wood, inſpire the worſhippers with a more ſolemn awe. It is not obnoxious to worms; and emits an oil which will preſerve cloth or books from worms or corruption. The ſawduſt will preſerve human bodies from putrefaction, and is therefore ſaid to be plentifully uſed in the rites of embalming, where practiſed."

The method of PROPAGATION is this: Having procured the cones, whether from the Levant or of our own growth, the ſeeds, a little before ſowing, ſhould be got out in this manner: Let a hole be bored with a gimblet exactly up the center of each cone, from the baſe to the apex; put them into a tub of water, where they may remain till the next day; then having a wooden peg, rather bigger than the gimblet, let it be thruſt down the hole, and it will ſo divide the cones, that the different ſcales may be taken away, and the ſeeds picked out. In doing this, great care muſt be taken not to bruiſe and hurt the ſeeds, which will then be very tender. The ſoil in which you ſow theſe ſeeds ſhould be rather of a ſandy nature; or, for want of this, ſome mould taken from a rich paſture, and ſieved with a little drift ſand, will ſerve the purpoſe. Having the mould and ſeeds ready, in the beginning of March let the latter be ſown in pots or boxes near half an inch deep: In about ſeven or eight weeks the plants will come up, when they ſhould be removed into the ſhade from the heat of the ſun; where they may ſtand, but not under ſhelter, all the ſummer; during which time they ſhould

be

be kept clean of weeds, and watered now and then. In the winter-ſeaſon they muſt be removed into a warmer ſituation; or, if it is likely to prove very ſevere, they ſhould be ſheltered either by mats, or removed into the greenhouſe, or covered with an hotbed-frame; for they are ſubject to loſe their young tops at firſt, by the ſeverity of froſts. In the beginning of April following, theſe plants may be pricked out in beds four inches aſunder; and if the weather proves dry, they ſhould be ſhaded and watered till they have taken root; after which they will want little ſhading and leſs watering. Indeed, nothing more is required than keeping them clean from weeds, and covering the ground ſo as to keep it moiſt, and prevent its chapping by the ſun's rays. In theſe beds they may remain two years; when, in the ſpring, they ſhould be tranſplanted to the nurſery, where they may remain till they are finally planted out. During the time they are in the nurſery, and after planting out, many will frequently have a tendency to droop in their leading-ſhoot: As ſoon, therefore, as this is perceived, an upright ſtake muſt be driven into the ground, to which the ſhoots ſhould often be tied with baſs matting to keep them in their upright growth. This, however, will not always effect it; for ſome, after being tied, ſo effectually turn the ſhoot downwards over the bandage, though looſe, as to appear as if they were beat down on purpoſe. The Larch alſo will ſometimes rebel in this way: So that it would not be amiſs, in both caſes, whenever they firſt diſcover any ſigns of ſuch a tendency, to lighten the head, by nipping off the extremities of ſome few of the largeſt branches.

When theſe trees are planted out to remain, they ſhould be left to Nature, after being properly fenced: Not a knife nor a hatchet ſhould come near them; lopping even their loweſt branches is ſo injurious, that it both retards their growth and diminiſhes their beauty.

The Cedar of Lebanon will grow well in almoſt any ſort of ſoil or ſituation. As a proof of this, we need only obſerve, that in its native ſituation the roots are during part of the year covered with froſt and ſnow.

8. The YEW-LEAVED FIR. This ſpecies includes the Silver Fir and the Balm of Gilead Fir.

The *Silver Fir* is a noble upright tree *. The branches are not very numerous, and the bark is ſmooth and delicate. The leaves grow ſingly on the branches, and their ends are ſlightly indented. Their upper ſurface is of a fine ſtrong green colour, and their under has an ornament of two white lines, running lengthways on each ſide the midrib, on account of which ſilvery look this ſort is called the Silver Fir. The cones are large, and grow erect; and when the warm weather comes on, they ſoon ſhed their ſeeds; which ſhould be a caution to all who wiſh to raiſe this plant, to gather the cones before that happens.

The *Balm of Gilead Fir* has of all the ſorts been moſt coveted, on account of the great fragrance of its leaves; tho' this is not its only good property; for it is a very beautiful tree, naturally of an upright growth, and the branches are ſo ornamented with their balmy leaves, as to exceed any of the other ſorts in beauty. The leaves, which are very cloſely ſet on the branches, are broad; and their ends are indented. Their upper ſurface, when healthy, is of a fine dark-green colour, and their under has white lines on each ſide the mid-rib length-ways, nearly like thoſe of the Silver Fir. Theſe leaves, when bruiſed, are very finely ſcented; and the buds, which ſwell in the autumn for the next year's ſhoot, are very ornamental all winter, being turgid, and of a fine brown colour: and from theſe alſo exſudes a kind of fine turpentine, of the ſame kind of (tho' heightened) fragrancy. The tree being wounded in any part, emits plenty of this turpentine; and HANBURY ſays, "it is ſuppoſed by many to be the ſort from whence the Balm of Gilead is taken, which occaſions this tree being ſo called. But this is a miſtake; for the true Balm of Gilead is taken from a kind of *Terebinthus*; tho' I am informed, that what has been collected from this tree has been ſent over to England from America (where it grows naturally), and often ſold in the ſhops for the true ſort."

Theſe trees are PROPAGATED by ſowing the ſeeds in a ſhady border, about the middle of March. They will readily come up if the ſeeds are good; but as this is not often the caſe, eſpe-

* Mr. MARSHAM ſays, "The talleſt trees I have ſeen were Spruce and Silver Firs, in the vallies in Switzerland. I ſaw ſeveral Firs in the Dock-yards in Venice 40 yards long; and one of 39 yards was 18 inches diameter at the ſmall end. I was told they came from Switzerland."

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cially if they are procured from the ſeedſmen, they ſhould be ſown very cloſe, otherwiſe you will be certain of having a very thin crop. The ſucceeding ſummer the plants will require no trouble, except keeping them clean from weeds; and the ſpring after that they ſhould be pricked out in beds at about four inches diſtance from each other. Here they may ſtand for two years, when they ſhould be planted in the nurſery, in rows a foot aſunder every way. The year, or at fartheſt two years, after they have been ſet in the nurſery, they ſhould be finally planted out; for if they are continued longer, many of them will die in the removal, and thoſe which grow frequently loſe their leading-ſhoot, and meet with ſo great a check as to be hardly able to get into a good growing ſtate for ſeveral years.

The Silver Fir is exceedingly hardy, and will grow in any ſoil or ſituation, but always makes the greateſt progreſs in a good rich loamy earth.

The latter muſt be planted in a deep, rich, good earth; neither will it live long in any other ſort of ſoil. It matters little whether it be a black mould, or of a ſandy nature, provided it be deep, and there is room for the roots to ſtrike freely. As theſe trees have hitherto been planted without this precaution, and as ſuch a kind of ſoil does not often fall in the ordinary courſe of Gardening, very few trees that have been planted many years are in a flouriſhing ſtate; for if they do not like the ſoil, or if the roots begin to meet with obſtructions, they ſoon begin to decline, which will be frequently in leſs than ſeven years; the firſt notice of which is, their leaves, which are naturally of a fine ſtrong green colour, loſe their verdure, and appear with a yellow tinge; and this colour grows upon them daily, until the appearance of the tree is changed. Another ſign of this tree being at its *ne plus ultra* is, its producing vaſt plenty of cones; this argues a weakneſs, and they generally die away by degrees ſoon after. This is always the caſe where the ſoil does not wholly agree with them; but where it is deep and good, they will be healthy and flouriſhing, and produce cones for ſeeds.

9. The EUROPEAN SPRUCE FIR. This ſpecies includes the Norway Spruce, and the Long-coned Corniſh Fir.

The *Norway Spruce* is a tree of as much beauty while grow-

ing, as its timber is valuable when propagated on that account. Its growth is naturally like the Silver, upright: and the height it will aſpire to may be eaſily conceived, when we ſay that the white deal, ſo much coveted by the joiners, &c. is the wood of this tree; and it may perhaps ſatisfy the curious reader to know, that from this Fir pitch is drawn. The leaves are of a dark green colour; they ſtand ſingly on the branches, but the younger ſhoots are very cloſely garniſhed with them. They are very narrow, their ends are pointed, and they are poſſeſſed of ſuch beauties as to excite admiration. The cones are eight or ten inches long, and hang downwards.

The manner of PROPAGATING this tree is nearly the ſame as that of the Scotch Fir, only this will more eaſily grow when of a large ſize, and conſequently will not require removing ſo often in the nurſery. In the middle of March, having got the ſeeds out of the cones, ſow them in a north border; for when they come up, by being conſtantly ſhaded all the ſummer in ſuch a ſituation, they will ſhoot much ſtronger, and be better to prick out the ſpring following in the nurſery. In about ſix or ſeven weeks after ſowing, the young plants will appear, when they ſhould be ſcreened with the uſual care from the birds, which otherwiſe would ſoon deſtroy them. By the autumn, many of theſe young plants, if they are kept clean from weeds and watered in dry weather, will have ſhot three or four inches; and in ſpring they ſhould be carefully taken out of their ſeed-beds, ſo that the fibres may by no means be broken off or injured. Being thus cautiouſly taken up, they ſhould be as carefully planted in the nurſery-ground, at the diſtance of one foot aſunder each way. Here they may remain, with keeping them free from weeds, for three years, when they ſhould be ſet out in the places where they are deſigned to remain. But if larger trees are deſired for this purpoſe, they ſhoud be taken up and planted in the nurſery, a foot and a half aſunder, in rows two feet and a half diſtant, where they may ſtand, if required, till they are ſix or eight feet high, without any other removing.

When they are ſet out finally, they may be planted, with tolerable hopes of ſucceſs; for the Spruce-Fir is not ſo nice or difficult in ſhifting its quarters as any of the other ſorts of Pines. But though theſe trees may be tranſplanted at a good height, it

is always adviseable to remove them to the places designed for them with all possible dispatch, as they are more certain of growing, and will recover the check occasioned in all trees by removal in less time.

The better the soil is, the faster will the Spruce Fir grow, though it will thrive very well in most of our English lands. In strong loamy earth it makes a surprising progress; and it delights in fresh land of all sorts, which never has been worn out by ploughing, &c. though it be ever so poor.

The *Long-coned Cornish Fir* differs scarcely in any respect from the Norway Spruce, except that the leaves and the cones are larger.

10. The American Spruce Fir. This species includes three varieties: The *White Newfoundland Spruce:* The *Red Newfoundland Spruce:* and the *Black Newfoundland Spruce.* These, however, differ so little, that one description is common to them all. They are of a genteel upright growth, though they do not shoot so freely or grow so fast with us as the Norway Spruce. The leaves are of the same green, and garnish the branches in the same beautiful manner as those of that species, only they are narrower, shorter, and stand closer. The greatest difference is observable in the cones; for these are no more than about an inch in length, and the scales are closely placed. In the cones, indeed, consists the difference of these three sorts: Those of the White species are of a very light-brown colour; those of the Red species more of a nut-brown or reddish colour; and those of the Black species of a dark or blackish colour. Besides this, there is scarcely any material difference; though it is observable, that this trifling variation seems to be pretty constant in the plants raised from the like seeds. These sorts will often flower, and produce cones when only about five or six feet high; and indeed look then very beautiful; but this is a sign of weakness in the plant, which it does not often fairly overget.

11. The Hemlock Fir possesses as little beauty as any of the Fir tribe; though being rather scarce in proportion, it is deemed valuable. It is called by some the Yew-leaved Fir, from the resemblance of the leaves to those of the Yew-tree. It is a tree of low growth, with but few branches; and these are long

long and ſlender and ſpread abroad without order. The leaves do not garniſh the branches ſo plentifully as thoſe of any other ſort of Fir. The cones are very ſmall and rounded; they are about half an inch long; and the ſcales are looſely arranged. We receive theſe cones from America, by which we raiſe the plants; though this caution ſhould be given to the planter, that this tree is fond of moiſt rich ground, and in ſuch a kind of ſoil will make the greateſt progreſs.

12. The ORIENTAL FIR. This is a low but elegant tree. The leaves are very ſhort, and nearly ſquare. The fruit is exceeding ſmall, and hangs downward; and the whole tree makes an agreeable variety with the other kinds.

In PROPAGATING the AMERICAN SPRUCE and the HEMLOCK FIR, the ſeeds being very ſmall, a more than ordinary care ſhould be taken of them, leſt they be loſt. They ſhould be ſown in pots or boxes of fine light mould, and covered over hardly a quarter of an inch. They ſhould be then plunged up to the rims in a ſhady place, and netted, to ſave them, when they firſt appear, from the birds. If the place in which they ſtand is ſhaded, they will need little or no water all ſummer, unleſs it proves a very dry one; and being all of a very hardy nature, they will not require the trouble of covering in the winter. The beginning of July after that, the Newfoundland Spruce Fir ſhould be pricked out in beds at a ſmall diſtance, though the Hemlock Spruce ſhould remain in the pots a year longer, as they will then be very ſmall. After they are planted, they muſt be well watered, and the beds muſt be hooped, to be covered with mats for ſhade. In hot weather the mats ſhould be put over the beds by nine o'clock in the morning, and conſtantly taken off in the evenings, and remain ſo in cloudy and rainy weather. After they have taken root, they require no further care, until they are planted out; which, ſays HANBURY, "cuſtom has taught us to do in the autumn or in the ſpring; but I have by much experience found, that July is a good month for planting out all the ſorts of Firs; and if it were done in a wet time, and the weather ſhould continue moiſt or cloudy for two or three weeks, it would be by far the beſt time in the whole year. Whoever, then, plants out Firs in July, unleſs

unleſs ſuch weather happens, muſt ſhade and water them for a month or ſix weeks; but as ſhade is not to be afforded large trees of this kind, if there be many of them, their removal muſt be at the uſual times, leſt that parching time which often comes in the middle of ſummer burn them up before they can have time to take root. On this account, the planting of trees at Midſummer ſhould be tenderly enforced; though I muſt declare, that I have repeatedly planted Scotch Firs of different ſizes, ſome, one yard and more, others, ſix feet high, in the ſcorching heat, and left them to Nature, without giving them any aſſiſtance, and they have for the moſt part grown. Let others, if they pleaſe, make the experiment with a few, before they venture to plant out quantities at that ſeaſon." This information and the manner in which it is conveyed do Mr. HANBURY great credit as a practical man and a writer.

PISTACIA.

LINNEAN Claſs and Order, *Dioecia Pentandria:* Male flowers containing five ſtamina, and female flowers containing three piſtils, upon diſtinct plants: There are five SPECIES; four of which will endure our winters, provided they be placed in a warm well-ſheltered ſituation:

1. PISTACIA *Terebinthus:* The COMMON TURPENTINE TREE; *a ſub-evergreen tree*; native of Italy, Spain, and ſome parts of Africa.

2. PISTACIA *Vera:* The COMMON PISTACIA, or PISTACIA-NUT-TREE; *a ſub-evergreen tree or ſhrub*; native of Perſia, Arabia, Syria and India, from whence we receive the nuts.

3. PISTACIA *Trifolia:* The THREE-LEAVED PISTACIA, or TURPENTINE-TREE; *a low ſub-evergreen tree*; native of Sicily.

4. PISTACIA *Narbonenſis:* The LARGE-FRUITED TURPENTINE-TREE; *a ſub-evergreen tree*; native of Perſia, Armenia, Meſopotamia, and the ſouth of France.

1. The

1. The COMMON TURPENTINE-TREE will grow to the height of about thirty feet. The bark of the trunk is thick, full of cracks, and of a dark-brown colour; whilſt that on the young ſhoots is thin and ſmooth. The leaves are pinnated and large, of a dark-green colour, and grow alternately on the branches. The folioles of which each leaf is compoſed are oval, ſpear-ſhaped, and conſiſt of three or four pairs, which are placed on the mid-rib, beſides the odd one with which they are terminated. There will be male and female flowers on different plants. They exhibit their bloom in April: The male flower is nothing but a katkin, and the females make no figure; ſo that where philoſophy has no view, it is from the deſire of having an extenſive collection that we procure theſe trees. In warm countries, the leaves of the *Piſtacia* continue all the year; with us, they fall off when attacked by the froſts. From the trunk flows the true turpentine; in the room of which that taken from ſome of our Pines is generally ſubſtituted.

2. The PISTACIA-NUT-TREE is about twenty feet in height. The trunk of this ſpecies alſo is covered with a dark-brown bark, full of cracks, whilſt the young ſhoots are ſmooth, and of a light-brown colour. The leaves are likewiſe pinnated, being compoſed of about two or three pairs of folioles, which do not always ſtand exactly oppoſite on the mid-rib, terminated with an odd one. Theſe folioles are large, and nearly of an oval figure: Their edges turn backwards; but have nevertheleſs a noble look. The male flowers are katkins of a greeniſh colour; and the female flowers are very ſmall, and produced in cluſters from the ſides of the branches. April is the month of their flowering; and the female flowers are ſucceeded by the Piſtacia nuts we eat.

3. The THREE-LEAVED PISTACIA is of about twenty-five feet growth. The bark of the trunk is very rough, and of a dark-brown colour; but that of the young ſhoots is ſmooth, and lighter. The leaves of this ſpecies are trifoliate. The folioles are of an oval figure, of a very dark green colour, and are greatly ornamental to the plant. Different trees will have male and female flowers: The males are greeniſh katkins; and the females have no petals, are ſmall, and make no ſhow.

4. LARGER-

4. LARGER-FRUITED TURPENTINE-TREE will grow to be about twenty-five feet high. The bark partakes more of a whitiſh colour, and is ſmoother, than thoſe of the other ſpecies. The leaves alſo are pinnated; but the folioles of which each is compoſed are not always of the ſame number: Sometimes there are three, ſometimes five pair of folioles to form the compound leaf. Theſe are of a paler green than any of the other ſorts, of a roundiſh figure, and ſtand on longiſh footſtalks. The male flower of this ſpecies alſo is a katkin; and the females are ſucceeded by nuts, which by many are liked, being eatable, like the Piſtachia-nuts. The leaves continue on theſe trees great part of the year, in warm countries.

The PROPAGATION. The ſeeds, which we receive from abroad, ſhould be ſown as ſoon as poſſible after their arrival. A compoſt ſhould be prepared for them, mixed in the following proportions: Six barrows full of earth, from a freſh paſture, taken from thence at leaſt a year before, with the green ſward, and well turned and rotted; three barrows of drift or ſea ſand; and one barrow of old lime rubbiſh, beaten to duſt: Theſe ſhould be all well mixed together. The ſeeds ſhould be ſown about half an inch deep in pots, which may then be ſet under a warm wall or hedge, until the hot weather begins to come on, when they ſhould be removed into the ſhade, and plunged up to the rims in ſome mould. At the approach of winter, they may be removed into a warm place, and in ſpring a hot-bed muſt be prepared for their reception. As theſe plants rarely come up the firſt year, this will be a better method than to plunge them in a hot-bed ſoon after they are ſown; for even with this aſſiſtance, they will be later before they come up, will be very weak and tender plants in the autumn, and will require extraordinary future care to preſerve them; whereas, if they are ſuffered to remain unforced for one turn, they will be preparing to vegetate, and of courſe will come up themſelves the ſecond ſpring; but an hot-bed will be neceſſary, as at that time it will make them ſhoot ſtronger. But this forcing muſt by no means be continued; a hitch only is to be given them, and they ſhould immediately be hardened to the air. Watering and ſhade all ſummer muſt be allowed them; and they ought to be made as hardy as poſſible by the autumn. At the approach of winter, when other plants are to be ſet in the green-houſe, theſe ſhould

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go with them, or be placed under an hot-bed frame. They ſhould be ſet out with them in the ſpring, and in May the pots muſt be plunged up to the rim in the ſhade as before. The next winter they will require the green-houſe; and in the ſucceeding ſpring they will be two years old ſeedlings; at which time they ſhould be ſhaken out of the pots, and each planted in a ſeparate pot, in the ſame ſort of compoſt in which the ſeeds were ſown: This being done, they ſhould be afforded a heat in the bed to ſet them forward. After they have begun ſhooting freely, the glaſſes ſhould be taken off by degrees; and now they will want no more hot-beds. Watering muſt be given them in dry weather; and in the autumn they muſt be removed into the green-houſe, with other plants. And thus they ſhould be treated as a green-houſe plant for four or five, or if even ſix years it will be ſo much the better; obſerving always, however, in the ſpring, to ſhift them into a freſh and larger pot every other year. The plants being now five or ſix years old, and being become tolerably ſtrong and woody, may be ſet out in the places where they are to remain. Theſe, as was obſerved, muſt be warm well-ſheltered places, with a naturally dry ſoil; and if the two or three ſucceeding winters ſhould prove mild and favourable, they will by that time be grown to be very hardy, and may bid defiance to almoſt any weather. The Common Turpentine-tree and the Piſtachia Nut-tree, when grown old, reſiſt our ſevereſt froſts; and the other ſorts, though rather of a more tender nature, even if not old, will droop to none but the moſt piercing.

PLATANUS.

LINNEAN Claſs and Order, *Monoecia Polyandria:* Male flowers containing many ſtamina, and female flowers containing ſeveral piſtils; upon the ſame plant; the males being collected in a globular katkin, and the females digeſted in a roundiſh ball: There are only two SPECIES:

1. PLATANUS *Orientalis:* The ASIATIC or ORIENTAL PLANE; *a tall deciduous tree*; native of Aſia.

2. PLA-

2. PLATANUS *Occidentalis:* The AMERICAN or OCCIDENTAL PLANE; *a tall deciduous tree*; native of North America.

1. The ORIENTAL PLANE riſes to a very great height, and in its native ſoil grows to a prodigious ſize: The ſtem is covered with a ſmooth bark, which falls off annually. The bark of the young branches is of a dark-brown, inclining to a purple. The leaves are large and palmated, being deeply cut into five ſegments: their upper ſides are of a deep green, and the under ſides pale. The flowers are very minute: they come out at the ſame time as the leaves, which is in June. This is very late, and is no doubt a blemiſh to the beauty of this nevertheleſs highly *ornamental* tree. The antients, we are told, were very partial to this tree; which is not to be wondered at when we conſider the extenſive canopy it forms, and the impenetrable ſhade given by the number and ſize of its leaves; and conſequently the grateful coolneſs it muſt afford in a ſultry climate. EVELYN and HANBURY claſs this and the next ſpecies amongſt Foreſt or Timber-Trees; and their wood may rank with that of the Sycamore, which bears a conſiderable reſemblance to this genus of plants, and which in the North of England is called the *Plane Tree*.

2. The AMERICAN PLANE. This alſo grows to a great ſize; the ſtem not only ſwells to an immenſe thickneſs; but, riſing erect, ſhoots up perfectly ſtraight and cylindrical to an amazing height. The Hon. Paul Dudley, in a Letter to the Royal Society, ſays, "he obſerved in New-England one of theſe Plane-Trees nine yards in girth, which continued its bulk very high; containing when felled twenty-two loads of timber." The bark is ſmooth, and, like that of the Aſiatic ſpecies, falls off annually. The leaves are broad, with long footſtalks, and are cut into angles at their edges, but not divided nearly ſo deep as thoſe of the foregoing ſpecies: The upper ſide is of a light green, the under ſide paler: The flowers are ſmall, and come out with the leaves about the ſame time as thoſe of the Oriental Plane. Altogether, this tree is peculiarly refreſhing to the eye, and truly *ornamental.*

Beſides theſe two diſtinct ſpecies, there are two *varieties:*

The Maple-leaved Plane.
The Spaniſh Plane.

The

The *Maple-leaved Plane*, ſays MILLAR, is certainly a ſeminal variety of the Eaſtern Plane. It differs from the two ſorts before-mentioned in having its leaves not ſo deeply cut as thoſe of the Eaſtern Plane, but much more deeply than thoſe of the Occidental Plane. The footſtalks of the leaves are much larger than thoſe of either of the former, and the upper ſurface of the leaves is rougher.

The *Spaniſh Plane* has larger leaves than either of the other ſorts. They are divided in a ſimilar manner to thoſe of the Maple-leaved Plane. Some of them are cut into five and others into three lobes: Theſe are ſharply indented on their edges, and are of a light-green. This is by ſome called the *Middle Plane*, from its leaves being ſhaped between thoſe of the two firſt ſorts. This too is probably a variety of the Oriental Plane.

The method of PROPAGATING the ORIENTAL PLANE is from ſeeds, when they can be eaſily procured; but whoever enjoys not this convenience muſt have recourſe to layers. 1. The ground proper for the ſeminary ſhould be moiſt and ſhady, well dug, and raked till the mould is fine; then in the autumn, ſoon after the ſeeds are ripe, let them be ſcattered over this ground, and the ſeeds raked in, in the ſame manner as turnep-ſeeds. In the ſpring, many of the young plants will come up, though you muſt not expect the general crop till the ſecond year; the ſpring after which they may be taken out of the ſeminary, and planted in the nurſery in rows one yard aſunder, and at one foot and a half diſtance in the rows. Here they may remain, with the uſual care of digging between the rows and keeping them clean, till they are of ſufficient ſize to be planted out. 2. Where the ſeeds of theſe trees cannot be procured, layering muſt be the method of propagation. For this purpoſe, a ſufficient number muſt be planted out for ſtools, on a ſpot of earth double dug. After they have ſtood one year, they ſhould be cut down, in order to make them throw out young wood for layering. The autumn following, theſe ſhould be laid in the ground, with a little nick at the joint; and by the ſame time twelve months after, they will be trees of a yard high, with a good root, ready to be planted out in the nurſery, where they may be managed as the ſeedlings; and as the ſtools

will

will have ſhot up freſh young wood for a ſecond operation, this treatment may be continued at pleaſure.

The AMERICAN PLANE is PROPAGATED by cuttings; which, if they be taken from ſtrong young wood, and planted early in the autumn, in a moiſt good mould, will hardly fail of ſucceeding. They are generally planted thick, and then removed into the nurſery-ground, as the layers of the other ſort: But if a large piece of ground was ready, the cuttings might be placed at ſuch a diſtance as not to approach too cloſe before they were of a ſufficient ſize to be planted out to ſtand; and this would ſave the expence and trouble of a removal. The Oriental Plane-tree will grow from cuttings, but not ſo certainly as this; and whoever has not the convenience of proper ground for the cuttings, muſt have recourſe to layers, which, indeed, is for either ſort the moſt effectual and ſure method.

Plane-trees delight in a moiſt ſituation, eſpecially the Occidental ſort. Where the land is inclined to be dry, and Plane-trees are deſired, the others are to be preferred. But in moiſt places, by the ſides of rivulets, ponds, &c. the Occidental makes ſuch ſurpriſing progreſs, that it might be ranked among the Aquatics.

POPULUS.

LINNEAN Claſs and Order, *Dioecia Octandria*: Male flowers containing eight ſtamina, and female flowers containing one piſtil; upon diſtinct plants; the males and females being ſimilarly ſituated in long, looſe katkins: There are five SPECIES:

1. POPULUS *Alba*: The ARBEEL, or WHITE POPLAR; *a deciduous aquatic tree*; growing common in England and moſt parts of Europe.

2. POPULUS *Nigra*: The BLACK POPLAR; *a deciduous aquatic tree*; this alſo grows common in England and moſt parts of Europe.

3. POPULUS *Tremula*: The ASPEN; *a deciduous tree*; native of England and the colder parts of Europe.

4. Populus *Balſamifera*: The Carolina Poplar; *a deciduous tree*; native of Carolina and many parts of North America.

5. Populus *Heterophylla*: The Virginia Poplar; *a deciduous tree*; native of Virginia.

1. The White Poplar. This is a tall ſpreading tree, one of the largeſt of the aquatic tribe. The trunk is covered with a ſmooth whitiſh bark. The leaves are about three inches long, and ſtand upon footſtalks about an inch in length: they are indented at the edges; and are of a dark green on the upper ſurface, but white and woolly underneath. The Arbeel and Poplars in general, whilſt young, are elegant and *ornamental*; but the litter which is made by their katkins renders them diſagreeable neighbours to kept walks and ſhrubberies. The *uſes* of its wood are not many: it makes good boards, which have one peculiar good quality for flooring: they can with difficulty be made to burn, and will never blaze out like thoſe of other wood: it would be needleſs to add, that the wood of the Poplar is the worſt of fuel. It is a quick-growing tree, and may frequently be made uſe of as a ſkreen to hide ſwamps or other deformities.

2. The Black Poplar. This tree will alſo grow to a large ſize. Its leaves are not ſo large as thoſe of the former. Their colour is a pleaſant green; they are heart-ſhaped, and appear about the middle of April.

The *Lombardy Poplar*, or the *Po Poplar*, ſeems to be a *variety* of the Black Poplar: the chief difference is, the Black Poplar throws out a large ſpreading head, whilſt the Lombardy aſpires with a remarkably cloſe one, riſing like an obeliſk. There is a peculiar elegance in this plant when young, and in a moiſt rich ſituation it flouriſhes extraordinarily; but it will not thrive in a dry barren ſoil, ſoon growing ſtunted and moſſy.

3. The Aspen. This tree will grow to a great height, and takes a good outline. Its leaves are ſmaller than thoſe of the Black Poplar; they ſtand on long ſlender *flat* footſtalks, which render it of all the other ſorts the moſt tremulous; they are roundiſh, and ſmooth on both ſides; but do not make their appearance before the beginning of May: This, together with their inelegant ſhape and their want of brilliancy, render the Aſpen the leaſt *ornamental* of the Poplar tribe.

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The PROPAGATION of theſe three ſpecies of Poplar is very eaſy: they will grow from cuttings, ſetts, truncheons, &c.; but, ſays HANBURY, "I by no means approve of the planting of truncheons, as has been often practiſed on boggy places; becauſe I have always obſerved, that plantations of theſe luxuriant trees, attempted to be raiſed in this manner, have been frequently ſtunted, and very unpromiſing; and that the moſt promiſing trees have never equalled, in goodneſs or beauty, thoſe planted with regular trees raiſed in the nurſery. In order, therefore, to obtain a quantity of Poplars, proper to be planted in avenues or clumps, by the ſides of rivulets, bogs, or any other places where they are deſired, you muſt get a piece of ground double dug for the nurſery. If the trees wanted are to be planted for good in a watery ſituation, this nurſery-ground ſhould be pretty near it; but if they are deſigned for paſture-grounds, fields, or ſuch as have no more than a common degree of moiſture, the ſoil of the nurſery ſhould be proportionably drier. The latter end of October is the beſt ſeaſon for planting the cuttings; though they will grow if planted in any of the winter months. They ſhould be all of thoſe laſt year's ſhoots which have been vigorous, or at leaſt not older than two years wood. Theſe cuttings ſhould be one foot and a half in length; and muſt be planted in the nurſery-ground in rows, a yard aſunder, and at a foot and a half diſtance from one another. They ſhould be planted a foot in the ground, while the other half muſt remain to ſend forth the leading-ſhoot. Now in order to have one leading-ſhoot only, in ſummer theſe plants ſhould be carefully looked over, and all young ſide-branches nipped off, in order to encourage the leading-branch. After this, no farther care need be taken of them than keeping them clean of weeds, and digging between the rows in the winter, till they have attained a proper ſize to be planted out.

4. The CAROLINA POPLAR will grow to be a large timber-tree, and has a majeſty both enchanting and peculiar. It is an exceeding ſwift grower, inſomuch that it has been known to ſhoot ten feet in the ſpace of one ſummer, and to be in thickneſs, neareſt the baſe, an inch in diameter. The bark is ſmooth, and of a whitiſh colour; though that on the young ſhoots is of a fine green. The young ſhoots are cornered, having five angles; and the bark of which theſe are compoſed, being extended by the future growth, leaves only the traces on the older

branches of theſe angles. "This (continues HANBURY) gives the tree in winter a particular look; for at the baſe of each bud they curve over and meet. Thus there will be between every bud formed by the bark, figures like niches, as it were, of public buildings, tho' with an upright in the middle, at the top of each of which, like an ornament, is ſeated the bud, for the future ſhoot or leaf. Theſe buds are only to be found on the younger branches; but the figure is retained on the bark of the older without thoſe ornaments. But of all the trees in a collection, none more agreeably by its leaves entertains us than this, whether we conſider their colour, figure, or ſize. The colour is a light ſhining green, which is heightened in the autumn by the ſtrong mid-rib, and the large veins that iſſue from it, turning to a red colour; the leſſer veins alſo being in ſome degree affected, occaſions upon the ſame leaf a ſweet contraſt. Their figure nearly reſembles that of an heart, and they are notched at their edges. But the chief majeſty this tree receives is from the ſize of the leaves: I have meaſured ſome of the younger trees, and found the leaves ten inches long and eight broad, with a ſtrong footſtalk of four inches in length. Theſe majeſtic leaves are placed alternately on the branches; though, as the tree advances in height, they diminiſh in ſize. This ſpecies ſhoots late in the autumn; and theſe young ſhoots have their ends often killed in hard winters; which is an imperfection, as it cauſes the tree to have a very bad look in the ſpring, before and when the leaves are putting out: However, theſe laſt will not fail afterwards to make ample amends for the former defect. The flowers afford no pleaſure to the gardener: They are only katkins, like other Poplars, and fit only for the curious Botaniſt's inſpection."

5. The VIRGINIA POPLAR grows to be a large timber-tree. The branches are numerous, veined, and angular. The leaves are heart-ſhaped, broad, ſlightly ſerrated, and downy on their firſt appearance. The flowers come out in looſe katkins, and make little ſhow: They appear early in the ſpring; and are ſucceeded by numerous downy ſeeds, which are diſperſed all about to a conſiderable diſtance.

Theſe two ſpecies are PROPAGATED, 1. By cuttings. In order o obtain proper cuttings for the purpoſe, the plants ſhould be eaded the year before, and a foot and a half of the thickeſt part

of

of the former ſummer's ſhoots ſhould be taken. The month of October is the ſeaſon; and theſe cuttings ſhould be planted in a moiſt ſhady ſoil, one foot deep, with the other half foot above ground. Many of them will grow; though it is generally allowed to be a good crop if half ſucceed. 2. By layers. Theſe muſt be of the laſt ſummer's ſhoots; and the operation ought to be performed in the autumn, before they have done growing; for the ſap being then in motion, they may readily be brought down; whereas, if it is deferred until winter, the young ſhoots are then ſo exceedingly brittle, that though all poſſible care be taken, many of them, in attempting to bring them down, will be broken. A ſmall ſlit with the knife muſt be given to each; and after the operation is performed, ſome furze-buſhes ſhould be ſtuck round each ſtool, to break the keen edge of the black froſts, and preſerve the ends of the layers from being killed. In the ſpring they ſhould be cut down to within one eye of the ground; and by the autumn they will have ſtruck root, and be good plants, either for the nurſery-ground, or where they are intended to be ſet out to ſtand.

PRINOS.

LINNEAN Claſs and Order, *Hexandria Monogynia*: Each flower contains ſix males and one female: There are only two SPECIES:

1. PRINOS *Verticillatus*: The VIRGINIA WINTERBERRY, or DECIDUOUS PRINOS; *a deciduous ſhrub*; native of Virginia, Pennſylvania, and other parts of North-America.

2. PRINOS *Glaber*: The CANADA WINTERBERRY, or EVERGREEN PRINOS; *an evergreen ſhrub*; native of Canada.

1. The DECIDUOUS WINTERBERRY is a ſhrub of about ſix or eight feet in growth, ſending forth many branches from the bottom to the top, which are covered with a browniſh bark. The leaves are ſpear-ſhaped, pretty large, of a ſtrong green colour, lengthways ſerrated, and placed alternately on ſlender footſtalks on the branches. The flowers are produced at the ſides

of the branches, growing one or two together at the joints; but make no ſhow. They appear in July; and are ſucceeded by purple-coloured berries, which remain on the trees all winter, and look well.

The beſt way of PROPAGATING this plant is from its ſeeds. Theſe ſhould be ſown, ſoon after they are ripe, in beds of fine ſandy earth; and if the garden does not naturally afford ſuch, a few barrows full of drift ſand muſt be brought to mix with the common mould. The beds being thus prepared, and made ready for ſowing, the ſeeds ſhould be ſown about three quarters of an inch deep. It is very ſeldom that any of the ſeeds come up the firſt ſpring after; if any do, there will be but few; ſo that all the ſummer they muſt be kept clean from weeds. The ſpring following the plants will come up; though many will lie until the third ſpring before they make their appearance. After they are come up, weeding and watering muſt be afforded them in the ſummer; and with this care they may remain in the ſeed-bed two years. In March, being then two-years-old ſeedlings, they ſhould be taken up, and planted in the nurſery, at very ſmall diſtances; and here they may remain, with the uſual nurſery-care, until they are ſet out.

2. The EVERGREEN WINTERBERRY grows to about eight or ten feet high, ſends forth many branches from the bottom to the top, and the whole plant aſſumes the appearance of an *Alaternus*. The leaves are oblong, ſpear-ſhaped, acute, ſerrated, of a ſtrong green colour, and placed alternately on the branches. The flowers come out from the wings of the leaves, two or three together on a footſtalk. They are ſmall, white, appear in July, and are ſucceeded by red or purple berries, which remain on the trees all winter.

The PROPAGATION of this ſhrub is exactly the ſame as that of the deciduous ſpecies, except that this ſpecies is of a more tender nature; and inſtead of ſetting out the ſeedlings in the nurſery-ground, each ſhould be ſet in a ſeparate pot, to be placed under ſhelter in winter for a few years, until they are grown ſtrong plants, and after that to be turned out, with the mould at the roots, into the places where they are deſigned to remain, which ought always to be in a dry ſandy ſoil, and a well-ſheltered ſituation.

PRUNUS.

LINNEAN Claſs and Order, *Icoſandria Monogynia:* Each flower contains about twenty males and one female: There are fifteen SPECIES; twelve of which are here treated of; moſt of them well-known ſpecies; including a numerous tribe of orchard, garden, and ſhrubbery plants.

1. PRUNUS *Padus:* The PADUS, or COMMON BIRD-CHERRY; *a deciduous ſhrub or tree*; native of England and moſt parts of Europe.

2. PRUNUS *Virginiana:* The VIRGINIA PADUS; *a low deciduous tree*; native of Virginia, Pennſylvania, and Carolina.

3. PRUNUS *Canadenſis:* The CANADIAN PADUS; *a deciduous ſhrub or tree*; native of Canada and many other parts of America.

4. PRUNUS *Mahaleb:* The MAHALEB, or PERFUMED CHERRY; *a tall deciduous ſhrub*; native of Switzerland and the north of Europe.

5. PRUNUS *Armeniaca:* The APRICOT; *a low deciduous tree*; whoſe native country is unaſcertained.

6. PRUNUS *Ceraſus:* The CHERRY, or the CULTIVATED CHERRY; *a deciduous tree*; native of England and moſt parts of Europe.

7. PRUNUS *Avium:* The WILD CHERRY; *a tall deciduous tree*; native of England and the north of Europe.

8. PRUNUS *Domeſtica:* The PLUM; *a deciduous tree*; native of many parts of Europe.

9. PRUNUS *Inſititia:* The BULLACE; *a deciduous tree or ſhrub*; native of England and Germany.

10. PRUNUS *Spinoſa:* The SLOE-THORN, or BLACK THORN; *a deciduous ſhrub or tree*; native of England and moſt countries of Europe.

11. PRUNUS *Lauro-Ceraſus:* The LAUREL, or the COMMON LAUREL; *an evergreen ſhrub or tree*; native of Trebiſond, near the Black Sea.

12. PRUNUS *Luſitanica*: The PORTUGAL LAUREL; *an evergreen ſhrub*; native of Portugal; alſo of Pennſylvania, and other parts of America.

1. The COMMON PADUS, or BIRD-CHERRY, is a tree of about twenty feet growth; oftentimes it riſes higher. It grows with an upright ſtem, and makes a handſome appearance. The bark of the older ſhoots is of a dark-brown, inclined to a purple colour, and is beſprinkled with a few greyiſh ſpots; while the preceding ſummer's ſhoots are ſmoother, and of a reddiſh caſt. The buds early in the winter will begin to ſwell, for the future ſhoots. The leaves are large, and grow alternately on the branches. Their figure is nearly oblong. They are rough, and have their edges ſerrated. Their under ſurface is of a lighter colour than their upper, and they have two glandules at their baſe. The flowers are white, and produced in May, in long bunches. A kind of ſpike of white flowers grows from the ſides of the branches; and theſe waving about on every ſide, in a looſe and eaſy manner, have a genteel and pleaſing effect. The flowers of which theſe ſpikes are compoſed, ſtand each on their own proper pedicles, and are all arranged alternately along the main ſtalk, which is tolerably long. Theſe flowers are ſucceeded by fruit, which is a ſmall berry, that ripens in Auguſt, at which period it will be black; but beſides this, it will undergo the changes of being firſt green and afterwards red. When theſe berries are ripe, they are of a ſweet, diſagreeable taſte, but ſo liked by the birds (which will flock from all parts to feed on them) as to occaſion its being called the Bird-Cherry; and for their ſake purely many perſons plant a more than common quantity of theſe trees, that they may have theſe feathered ſongſters in greater plenty.

There is a *variety* of this tree, called the *Corniſh Bird-Cherry*, which differs from it in ſome reſpects; but theſe differences are inconſiderable.

2. The VIRGINIA PADUS will grow to thirty or forty feet high, and is ſaid to afford wood of great value. The bark is of a dark-brown, inclined to a purple colour, and ſpotted irregularly with ſome greyiſh blotches. The young ſhoots are of a lighter colour, and very ſmooth; and the whole tree is more ramoſe than the former ſort. The leaves are oval, and of a ſhining

green

green colour. Their edges are ſerrated, and placed alternately on the branches. They ſtand on ſhort footſtalks, and continue on the trees late in the autumn. Their flowers are white, and produced in May, in the ſame ſort of long bunches as the other; and are ſucceeded by black berries, which are equally coveted by the birds, for whoſe ſake only this ſpecies alſo is frequently planted. HANBURY claſſes this tree amongſt his Foreſt-Trees, and ſays, "The wood is very valuable; is much uſed by the cabinet-makers; will poliſh very ſmooth, and diſplay beautiful veins, both black and white." MILLER tells us, "that the *Padus Virginiana* will grow to be a large tree when it is planted in a moiſt ſoil, but in dry ground it rarely riſes more than twenty feet high." He has alſo a *Padus Caroliniana* (probably a *variety* of this ſpecies), the ſeeds of which he ſays "were ſent from Carolina by the title of BASTARD MAHOGANY, from the colour of the wood, which is ſomewhat like Mahogany." He adds, however, that "this ſeems to be little more than a ſhrub, if we may judge from the growth here."

3. The CANADA PADUS is of much lower growth than the former ſorts. The branches are ſmooth. The leaves are broad, ſpear-ſhaped, rough, downy, and deſtitute of glands, like thoſe of the former ſpecies. The flowers grow in long, branching bunches: Their colour is white; they come out in May, and are ſucceeded by ſmall, round, black berries, which will be ripe in the autumn.

4. The PERFUMED CHERRY ſeldom grows to be more than ten or twelve feet high. The branches are covered with a ſmooth, whitiſh-grey bark. The leaves are ſmall, of a lucid green colour, of an oval figure, and ſtand alternately on the branches. The flowers are white, produced in May in roundiſh cluſters, and are ſucceeded by berries, of which the birds alſo are very fond. The wood of all theſe ſorts is much eſteemed by the cabinet-makers, particularly amongſt the French, as it always emits a very agreeable odour.

5. The APRICOT-TREE is often planted as a flowering-ſhrub; for though it will grow to be thirty feet high, it may nevertheleſs be kept down to what height the owner deſires.

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"This tree, says HANBURY, as well as moſt ſorts of fruit-trees, is exceeded by few in ornament; for being permitted to grow in its natural ſtate to twenty or thirty feet high, with all its luxuriancy of branches, covered with their delightful heart-ſhaped leaves, what a glorious figure will it preſent! But when we reflect on the fine appearance ſuch a tree muſt make, early in the ſpring, when covered all over with the bloom of ſuch fine flowers as thoſe of the Apricot are known to be, this enhances the value; and either of theſe motives is ſufficient for introducing theſe trees into plantations of this kind. Add to this, ſome of the ſorts, in warm well-ſheltered ſituations, will produce fruit when growing in this manner, as well as if planted and trained againſt walls; ſo that additional returns will be made by the fruit to the curious planter of theſe trees."

6. The CHERRY-TREE of our orchards is too well known, with all its varieties, to need any deſcription. HANBURY obſerves, "were the tree ſcarce, and with much difficulty propagated, every man, tho' poſſeſſed of a ſingle tree only, would look upon it as a treaſure. For beſides the charming appearance theſe trees have, when beſnowed, as it were, all over with bloom in the ſpring, can any tree in the vegetable tribe be conceived more beautiful, ſtriking, and grand, than a well-grown and healthy Cherry-tree, at that period when the fruit is ripe?"

The many kinds of Cherry-trees afford an almoſt endleſs *variety*; all differing, in ſome reſpect, in their manner of ſhooting, leaves, flowers, or fruit: two in particular demand admiſſion into the pleaſure-garden; the Double-bloſſomed and the Red-flowering.

The *Double-bloſſomed Cherry*. The pleaſing ſhow the common Cherry-tree makes when in blow is known to all; but that of the Double-bloſſomed is much more enchanting. It bloſſoms, like the other, in May; the flowers are produced in large and noble cluſters; for each ſeparate flower is as double as a roſe, is very large, and placed on long and ſlender footſtalks, ſo as to occaſion the branches to have an air of eaſe and freedom. They are of a pure white; and the trees will be ſo profuſely covered with them, as to charm the imagination. Standards of theſe trees, when viewed at a diſtance, have been compared to balls

balls of ſnow; and the nearer we approach, the greater pleaſure we receive. Theſe trees may be kept as dwarfs, or trained up to ſtandards; ſo that there is no garden or plantation to which they will not be ſuitable. By the multiplicity of the petals the organs of generation are deſtroyed; ſo that thoſe flowers which are really full are never ſucceeded by any fruit.

The *Red-flowering Cherry-tree* differs in no reſpect from the Common Cherry-tree, only that the flowers are of a pale-red colour, and by many are eſteemed on that account.

Beſides the *ornament* and utility afforded us by the flowers and fruit of the Cherry, its *timber* is a further inducement for propagating it; more eſpecially that of the ſmall *Black Wilding* ſort; which may perhaps with propriety be conſidered as the genuine ſpecies, and a native of this iſland. Be this as it may, it will grow, in a ſoil and ſituation it affects, to be a large timber tree, which, if taken in its prime before it become tainted at the heart, will turn out perhaps not leſs than a ton of valuable materials, peculiarly adapted to the purpoſes of furniture. The grain is fine, and the colour nearly approaching to that of mahogany, to which valuable wood it comes nearer than any other which this country produces.

7. The WILD RED CHERRY is a very large-growing tree, and may like the Black Wilding be an object for timber. The leaves are oval, ſpear-ſhaped, and downy underneath. The flowers come out from the ſides of the branches in ſeſſile umbels. They appear rather later than the cultivated ſorts; and are ſucceeded by ſmall red fruit, which ripens late in the autumn. This is often called the Wild Northern Engliſh Cherry.

8. The PLUM-TREE, with all its varieties, is ſo well known as to require no deſcription. No one need be told, that the Plum-Tree is a large-growing tree, and that it has a beautiful appearance in ſpring when in blow. The fruit that ſucceeds the bloſſom is of many colours, ſhapes, and ſizes; and the trees of the variety of ſorts will be ſo adorned with them in the autumn, as have a noble and delightful effect, being hardly exceeded by the Cherry itſelf. Theſe are ſeldom planted any

where

where except in orchards; but let them be ſet where they will, they never fail to repay the owner with pleaſure and profit.

The *varieties* which are principally eligible for ornamental plantations are, The Cherry Plum-Tree, the Double-bloſſomed, the Stoneleſs, the Gold-ſtriped, and the Silver-ſtriped Plum.

The *Cherry Plum-Tree* is always planted among flowering-ſhrubs, on account of its early flowering. It may be kept down to any height; and the flowers will be produced in March, in ſuch plenty, and ſo cloſe, as almoſt to cover the branches. It is admired by all for the early appearance of its flowers, which are ſucceeded, after a mild ſpring, by a round reddiſh plum, on a long ſlender footſtalk, that has the reſemblance of a Cherry. Unleſs there is little or no froſt after theſe trees have been in blow, it rarely happens that any fruit ſucceeds the flowers.

The *Double-bloſſomed Plum-Tree* is another variety. The flowers of this ſort are exceedingly double, and the twigs will be richly furniſhed with them in the month of May. Their petals, like thoſe of the Cherry, are of a pure white, though amongſt theſe ſome filaments with darkiſh antheræ appear. As ſoon as the ſhow of flowers is over, we are not to give up all expectations from this tree; for many of them will be ſucceeded by fruit, which is of the ſame colour, ſhape, and taſte, with the common Damaſcene, though ſmaller, and is liked by many.

The *Stoneleſs Plum*. This is a variety that ſhould be admitted on no other account than becauſe the pulp ſurrounds a kernel, without having any ſtone. It is a ſmall blue plum; and thoſe people who have it in poſſeſſion, take a pleaſure in ſhewing it as a curioſity.

The *two Striped ſorts* make a variety by their variegated leaves; on which account they are frequently ſought after by the curious.

9. The Bullace-Tree is ſometimes planted in ſhrubbery quarters, for the ſake of the fruit; which by many perſons is deemed very agreeable, being poſſeſſed of a fine acid. It ought to be pulled and eaten immediately from the tree.

The *varieties* of this ſpecies are, The *Black*, the *White*, and the *Red Bullace*.

10. The Sloe-Tree. The Sloe-buſh is, without all doubt, a ſpecies diſtinct from either Plum or Bullace. And indeed it is ſuch a ſpecies, that, were it not for its commonneſs, it would

be

be thought inferior in beauty to none of our ſhrubs. The commonneſs of this tree, however, cauſes its beauties to be unnoticed, and forbids us to admit too many into our collection.

11. The COMMON LAUREL will grow to about thirty feet, and the leaves, which are ſometimes five or ſix inches long and three broad, being likewiſe of a firm ſtructure even at the edges, garniſh the branches of the tree in ſuch a manner as would excite our admiration, did not the frequency of this noble plant diminiſh our reſpect. The Laurel, however, will ever, we apprehend, preſerve its rank as a *Stock Plant* in ſhrubberies and other *ornamental* grounds. EVELYN places the Laurel among Foreſt Trees; and HANBURY ſpeaks of the *uſes* of its timber to the turners and cabinet-makers. It ſeems peculiarly adapted to the purpoſe of ORNAMENTAL UNDERWOOD; as it is of quick growth, and will flouriſh under the drip and ſhade of other trees.

The Common Laurel affords two *varieties:* the *Gold-ſtriped* and *Silver-ſtriped* Laurel.

12. The PORTUGAL LAUREL is a lower-growing tree than the former; and though its leaves, flowers, &c. are proportionally ſmaller, it is thought by many to be much the moſt beautiful; the commonneſs of the one, and ſcarcity of the other, may perhaps not a little contribute to this opinion. The Portugal Laurel will grow to be ſix, eight, or ten feet high, accordingly as the ſoil in which it is placed contributes to its encreaſe. The branches are produced in an agreeable manner, being chiefly inclined to an upright poſture; and the young ſhoots are clothed with a ſmooth reddiſh bark. The leaves are ſmooth, and of a fine ſtrong green colour, though their under ſurface is rather paler than the upper. They are much ſmaller than thoſe of the Common Laurel, are of an oval figure, and have their edges ſerrated; they are of a thick conſiſtence, and juſtly entitle the tree to the appellation of a fine Evergreen. The flowers are produced in the ſame manner as thoſe of the Common Laurel, but are ſmaller. They are white, appear in June, and are ſucceeded by berries, which when ripe are black; though before that they will undergo the different changes of being firſt green, and then red.

The

The PROPAGATION of the ſeveral tribes of *Prunes* varies with the reſpective ſpecies.

The ſpecies and varieties of PADUS, or BIRD-CHERRY, may be raiſed, 1. From ſeeds, ſown in autumn, in beds of light earth, about half an inch deep. The plants will appear the firſt ſpring, and the ſpring following they may be planted out into the nurſery at the diſtance of two feet by one; in which ſituation they may remain till wanted for planting out. 2. This claſs may alſo be propagated by Layers; the young twigs, being ſimply laid in the ground, will without any other trouble ſtrike root in one year, and may be taken up and tranſplanted into the nurſery, or be planted where they are to remain, as circumſtances may ſuit. 3. Theſe trees will alſo grow from cuttings, planted in October, in a moiſt ſituation: if the ſpring and ſummer prove dry, they will require to be watered.

This claſs of *Prunus* affects a moiſt ſituation.

The PERFUMED CHERRY is PROPAGATED by grafting, or by budding upon any of our Cherry-ſtocks.

The APRICOT-TREE is PROPAGATED by budding it upon the Plum-ſtock.

The FRUIT-BEARING, DOUBLE-BLOSSOMED, and RED-FLOWERING CHERRY-TREES are PROPAGATED by grafting upon ſtocks raiſed from the ſtones of the Black-Cherry-tree; though it may be proper to obſerve here, that when the Double-bloſſomed Cherry is wanted to be kept very low, in its dwarf ſtate, the Common Bird-Cherry will be a much more proper ſtock to work it upon, as that ſort is naturally of much lower growth than the Black Cherry-tree.

The PLUM-TREE, in all its varieties, and the Bullace-tree, the Cherry Plum, the Double-bloſſomed Plum, and the Stoneleſs Plum, are PROPAGATED by grafting upon Plum-ſtocks raiſed from ſeeds; though it is obſervable, that ſuckers of the Bullaces will grow to be trees, and produce plenty of good fruit; but theſe will not be ſo good as thoſe grafted on the Plum-ſtocks.

The SLOE-BUSH may be obtained from the places where they grow; for from thence a ſucker or two may be taken, and planted

planted for the conveniency of obſervation; but theſe will not be ſo good as thoſe raiſed from the ſtones.

The COMMON LAUREL is PROPAGATED either from ſeeds or from cuttings. 1. If the former method is practiſed, the ſeeds muſt be gathered from the trees when they are full ripe: This will be known by their being quite black, which is generally about the beginning of October. Theſe ſeeds ſhould be ſown directly in beds of light earth, half an inch deep, which muſt be afterwards hooped over, to be covered in very ſevere froſts. A hedge of furze-buſhes alſo ſhould be made around them, to break the force of the freezing black winds, and ſecure the ſeeds, together with the mats, from being deſtroyed. This is a much ſafer method than covering the beds with litter, which, if neglected to be taken off when the froſt is over, will retain the rains which generally ſucceed ſuch weather, ſodden the beds, and make them ſo wet as frequently to deſtroy the whole of the expected crop. The ſeeds being ſown, and preſerved with the above care, will appear in the ſpring. During the ſummer they ſhould be kept clear of weeds, as well as watered in dry weather; and all the enſuing winter they muſt remain untouched in their beds, the furze-hedge ſtill ſtanding till the froſty weather is paſt; for if theſe young ſeedlings are planted out in the autumn, the major part of them will be in danger, before the winter be expired, of being thrown out of the ground by the froſt; and not only ſo, but of being really killed by it, as they are not very hardy at one year old. In the ſpring, therefore, when the bad weather is ceaſed, let them be planted out in the nurſery-ground, in rows two feet aſunder, and the plants a foot and a half diſtant in the rows; where they may ſtand till they be finally planted out. 2. Trees raiſed from ſeeds generally grow more upright, and ſeldom throw out ſo many lateral branches as thoſe reared from cuttings; nevertheleſs, as the expectation of a crop from ſeeds has ſo often failed, notwithſtanding great care has been uſed; and as the difficulty of procuring the ſeeds, and preſerving them from the birds, has been very great; the moſt certain and expeditious method of raiſing quantities of theſe trees is by cuttings, and is as follows:

lows: In the month of Auguſt the cuttings ſhould be gathered, about a foot and a half in length. They will thrive the better for having a bit of the laſt year's wood at the end, though without this they will grow exceeding well. The under leaves ſhould be cut off a foot from the thick end of the cuttings, which muſt all be planted about a foot deep in the ground; the other half foot, with its leaves, being above it. No diſtance need be obſerved in planting theſe cuttings, which may be ſet as thick as you pleaſe, though the ground for raiſing them ſhould be ſheltered, leſt the winds, which are frequently high at this time of the year, or ſoon after, looſen the plants juſt when they are going to ſtrike root, if not wholly blow them out. The weather when the cuttings are to be planted ſhould be either rainy or cloudy; and if no ſhowers ſhould fall in Auguſt, the work muſt be deferred till they do; for if cuttings are planted in Auguſt, when the weather is parching and dry, they will be burnt up, without great care and trouble in ſhading and watering. Neither is cloudy or rainy weather only to be recommended in planting theſe cuttings, but a ſhady ſituation alſo, either under a north wall, or in beds which are covered the greateſt part of the day with the umbrage of large trees. This ſhady ſituation is very neceſſary for them; ſince, though the weather be rainy and cloudy when they are planted, yet ſhould it prove fair afterwards, the ſun will ſoon dry up the moiſture at that ſeaſon, and endanger the plants, if they are not conſtantly watered and protected with a ſhade; which at once ſhews the expediency of pitching on a ſpot where ſuch a conveniency is natural. If theſe cuttings are planted in Auguſt, they will have taken root before winter, eſpecially if they have ſhade, and water in dry weather: but they ſhould remain undiſturbed till the ſpring twelvemonth following, in order to acquire ſtrength to be planted in the nurſery. During the ſummer, they will require no other trouble than watering in dry weather, and being kept clean from weeds; and by the autumn they will have made a ſhoot of perhaps a foot or more in length. In the beds, nevertheleſs, they may remain till the ſpring, when they ſhould be all carefully taken out, and planted in the nurſery, as was directed for the ſeedlings.

The

The PORTUGAL LAUREL is to be raiſed the ſame way as the Common Laurel, by *Seeds* and *Cuttings*; but the cuttings of the Portugal Laurel do not take ſo freely as thoſe of the Common ſort; and the young practitioner, out of a good bed of cuttings, muſt expect to ſee but a few real plants ſucceed. If they are planted in July or Auguſt, they muſt be ſhaded, and kept moiſt during the hot weather; and that will be the moſt probable way to enſure ſucceſs. If a perſon has the conveniency of a good ſtove, the beſt method is not to plant them until the ſpring; and then many cuttings may be planted in one pot, and afterwards plunged into the bark-bed; and by this means numerous plants may eaſily be obtained.

P T E L E A.

LINNEAN Claſs and Order, *Tetrandria Monogynia*: Each flower contains four males and one female: There are only two SPECIES: one of them introduced into our ſhrubberies; the other a late diſcovery.

PTELEA *Trifoliata*: The THREE-LEAVED PTELEA, or the TREFOIL SHRUB; *a deciduous ſhrub*; native of Virginia and Carolina.

The PTELEA will grow to the height of ten feet. The branches are not very numerous;—when broken they emit a ſtrong ſcent: They are brittle, full of pith, and covered with a ſmooth purpliſh bark. The leaves are trifoliate, and grow irregularly on the branches, on a long footſtalk. The folioles are oval, ſpear-ſhaped, of a delightful ſtrong green colour on their upper ſide, lighter underneath, ſmooth, and pretty large when they are fully out, which will not be before part of the ſummer is elapſed; for they put out late in the ſpring. The flowers are produced in bunches at the end of the branches: Their colour is a greeniſh-white. They come out in June; and are ſucceeded by roundiſh bordered capſules; but the ſeeds ſeldom ripen in England.

This ſhrub may be PROPAGATED either by ſeeds, layers, or cuttings. 1. By ſeeds. Theſe ſhould be ſown in a warm

border, in the ſpring, in common garden mould made fine; and if the ſeeds are good, they will grow, and come up the firſt ſummer. We generally receive the ſeeds from abroad; though they will in ſome warm ſeaſons ripen here with us. When the young plants begin to come up, which will be, if the ſeeds are good, by the end of May, they ſhould be ſhaded, and every ſecond evening duly watered; and this, together with conſtant weeding, will be all the care they will require until the autumn. At the approach of winter, it will be proper to prick ſome furze-buſhes round the bed, to break the keen edge of the black froſts. They will then require no other trouble until the ſecond ſpring after they are come up; when they ſhould be all taken out of the ſeed-bed, and planted in the nurſery, a foot aſunder; and in two or three years they will be fit to be finally planted out. 2. By layers. For this purpoſe a number of plants muſt be planted for ſtools; and, after they have ſtood a year or two, theſe ſhould be cut down pretty near the ground. By the autumn they will have made ſhoots, ſome of which will be five or ſix feet, or more, in length; and theſe are the ſhoots for layering. October is the beſt month for the work; and the operation is to be performed by cutting the twig half through, and making a ſlit half an inch long. Any thing may be put into this ſlit, to keep it open; and after the mould is levelled all round, the longeſt ends ſhould be taken off. By this method they will generally have good roots by the autumn following: and the ſtools will have ſhot out freſh wood for a ſecond layering. At this time they ſhould be taken up, and the weakeſt planted in the nurſery, to get ſtrength; whilſt the ſtronger layers will be good plants to ſet out to ſtand. After this, the operation may be again repeated, and ſo continued annually, at pleaſure. 3. By cuttings. In order to obtain plenty of good cuttings, the plants ſhould be headed as for layering. In October the young ſhoots ſhould be taken off, and cut into lengths of a little more than a foot, two-thirds of which ſhould be ſet in the ground. Some of theſe cuttings will grow; though, ſays HANBURY, I ever found this way very uncertain, and not worth the practiſing: But if the cuttings are planted in pots, and aſſiſted by artificial heat, they will grow readily. This, however, is not a good method; for they will be tender the firſt winter, as well as require to be protected in the greenhouſe, or

under

under ſome cover, which will occaſion more trouble than if they had been layered. By layers and ſeeds, therefore, are the beſt and moſt eligible methods of encreaſing theſe trees.

PYRUS.

LINNEAN Claſs and Order, *Icoſandria Pentagynia:* Each flower contains about twenty males and five females: There are eleven SPECIES: four of which are as follow:

1. PYRUS *Communis:* The PEAR; a well-known *deciduou tree*; native of moſt parts of Europe.

2. PYRUS *Malus:* The APPLE; an equally well-known *deciduous tree*; native alſo of moſt parts of Europe.

3. PYRUS *Coronaria:* The SWEET-SCENTED CRAB; *a deciduous tree*; native of Virginia.

4. PYRUS *Cydonia:* The QUINCE; *a deciduous ſhrub or tree*; native of the Banks of the Danube.

1. The PEAR. Of the numerous *Varieties* of this ſpecies of *Pyrus* there are two admiſſible into ornamental grounds:

The Double-bloſſomed Pear,
The Twice-flowering Pear.

The *Double-bloſſomed Pear* differs from the other ſorts only in that the flowers are double. The leaves, indeed, are not ſo much ſerrated as ſome of the other Pears; nay, ſcarcely any ſerratures appear, excepting on the oldeſt leaves; for the younger are perfectly entire and downy. The multiplicity of the petals of this flower is not ſufficient to entitle it to the appellation of a full flower; for it conſiſts only of a double row of petals; but as theſe are all large, produced in cluſters, and of a pure white, they entitle the tree to be called a flowering-tree, with greater propriety than the ordinary Pears can be ſo ſtyled. The planter of this ſpecies is rewarded in a double reſpect; for as the petals are not multiplied in ſo great a degree as to deſtroy the ſtamina, the flowers are ſucceeded by a

good fruit, whoſe properties are ſuch as entitle it to the rank of a good baking Pear.

The *Twice-flowering Pear*. This ſpecies is ſufficiently deſcribed by the title; it being a Pear that often produces flowers in the autumn, when the fruit that ſucceeded thoſe of the ſpring are near ripe. This tree deſerves to be planted both for its beauty and ſingularity; for it ſometimes happens, though by no means conſtantly, that it is covered over in September with bloom and fruit. This autumnal bloom falls away, and the chilling cold often prevents its coming to any embryo fruit.

2. The APPLE. This ſpecies likewiſe affords us two ornamental *varieties*:

The Paradiſe Apple,
The Fig Apple.

The *Paradiſe Apple* is rather a ſhrub than a tree. There are two ſorts of it, which gardeners diſtinguiſh by the names of the French and the Dutch Paradiſe Apple. They are both low-growing trees; and the only difference between them is, that the Dutch ſort is rather the ſtrongeſt ſhooter. They are chiefly uſed for ſtocks to graft apples upon, in order to make them more dwarfiſh; ſo that a plant or two in a collection, for the ſake of variety, will be ſufficient.

Fig Apple has a place here for no other reaſon than its being deſtitute of the moſt beautiful parts of which the flowers are compoſed; viz. the petals: They have all the ſtamina, &c. but no petals, which is a ſingular imperfection; tho' by many they are coveted on that account. As the ſtamina and other parts are all perfect, the flowers are ſucceeded by a tolerable good eating Apple; for the ſake of which this tree deſerves to be propagated.

3. The SWEET-SCENTED CRAB of VIRGINIA differs from our Crab in the leaves, flowers, and fruit. The leaves are angular, ſmooth, of a fine green colour, and have a look entirely different from any of our Crabs or Apples. The flowers ſtand on larger footſtalks than thoſe of the generality of our Crabs, and are remarkable for their great fragrance. This tree is ſeldom in full blow before the beginning of June. The flowers, when they firſt open, are of a pale-red, though the petals ſoon after alter to a white colour. They are ſucceeded

by

by a little round Crab, which, of all others, is the ſoureſt, rougheſt, and moſt diſagreeable, that can be put into the mouth.

There is a *ſub-evergreen Crab* of America, ſuppoſed to be a *variety* of this ſpecies. Its natural growth ſeems to be not more than twelve feet; and the branches are covered with the ſame kind of ſmooth brown bark as our common Crab-tree. The leaves are long and narrow, and will often be found of different figures; for though ſome will be angular, others again are oblong, or of a lanceolate figure. They are fine, ſmooth, of a ſtrong dark-green colour, and have their edges regularly ſerrated. They will remain until late in the ſpring, which rather entitles this ſhrub to a place here; though in an expoſed ſituation, the ends of the branches will be often ſtripped of thoſe ornaments, after a few ruffian attacks of the piercing northern blaſts: So that this tree, when conſidered as an evergreen, ſhould always be planted in a well-ſheltered place, where it will retain its leaves, and look very well all winter.

4. The QUINCE. There are many *varieties* of the Quince-tree, which are chiefly raiſed for the fruit. The Quince-tree ſeldom grows to be higher than eight or ten feet; and the bark on the branches is often of a kind of iron colour. The leaves are large and oval: Their upper ſurface is of a pleaſant green colour, though often poſſeſſed of a looſe downy matter, and their under ſide is hoary to a great degree. The flowers are produced in May, all along the branches: They grow upon young ſhoots of the ſame ſpring, and are very large and beautiful; for although each is compoſed of about five petals only, yet theſe are often an inch long, are broad and concave, and of a fine pale-red as they firſt open, though they afterwards alter to a white; and thoſe flowers being produced the whole length of the branches, and beſpangling the whole tree in a natural and eaſy manner, juſtly entitle this ſpecies to no mean place among the flowering kinds. They are ſucceeded by that fine large yellow fruit which is ſo well known, and which at a diſtance, on the tree, appears like a ball of gold. Indeed, theſe trees ſhould always be planted at a diſtance from much-frequented places; for the fruit, valuable as it is when properly prepared for uſe, has a ſtrong diſagreeable ſcent, that

will fill the air all around with its odour, which to moſt people is offenſive.

PROPAGATION. HANBURY ſays, all theſe ſorts will take by grafting or budding upon one another, notwithſtanding what MILLAR has alledged to the contrary. He continues, "I have a tree that bears excellent Apples grafted upon a Pear-ſtock; and Pears grafted upon Crab-ſtocks that have not yet borne." The uſual way is to graft the PEARS on ſtocks raiſed from the kernels of Pears, and the APPLES on Crab-ſtocks. Theſe ſhould be ſown, ſoon after the fruit is ripe, in beds half an inch deep, and carefully guarded from mice, which will ſoon deſtroy the whole ſeminary, if once found out. In the ſpring the plants will come up; and in the winter following they ſhould be planted out in the nurſery, in rows two feet aſunder. In a year or two after this, they will be fit for working; and by this method all the ſorts of Pears and Apples are propagated.

The PARADISE APPLE is generally raiſed by layers or cuttings; and all the ſorts of QUINCES grow readily by cuttings, planted any time in the winter; though the early part of that ſeaſon is to be preferred.

The *Evergreen Crab* will take by grafting or budding on the common Crab or Apple-ſtock: but great care and nicety of execution is requiſite in performing the operation: Budding towards the latter end of July, HANBURY ſays, he has always found to be the moſt certain method.

QUERCUS.

LINNEAN Claſs and Order, *Monoecia Polyandria*: Male flowers containing many ſtamina, and female flowers containing one piſtil; upon the ſame plant; There are thirteen SPECIES.

1. QUERCUS *Robur*: The ENGLISH OAK: a well-known *tall deciduous tree*; native of England; and is found in moſt parts of Europe.

2. QUERCUS *Phellos*: The WILLOW-LEAVED OAK; *a deciduous tree*; native of moſt parts of North America.

3. QUERCUS

3. QUERCUS *Prinus*: The CHESNUT-LEAVED OAK; *a deciduous tree*; native of moſt parts of North America.

4. QUERCUS *Nigra*: The BLACK OAK; *a low deciduous tree*; native of North America.

5. QUERCUS *Rubra*: The RED OAK; *a tall deciduous tree*; native of Virginia and Carolina.

6. QUERCUS *Alba*: The WHITE OAK; *a deciduous tree*; native of Virginia.

7. QUERCUS *Eſculus*: The ITALIAN OAK, or the CUT-LEAVED ITALIAN OAK; *a low deciduous tree*; native of Italy, Spain, and the South of France.

8. QUERCUS *Ægilops*: The SPANISH OAK, or OAK WITH LARGE ACORNS AND PRICKLY CUPS; *a tall deciduous tree*; a native of Spain.

9. QUERCUS *Cerris*: The AUSTRIAN OAK, or the OAK WITH PRICKLY CUPS AND SMALLER ACORNS; native of Auſtria and Spain.

10. QUERCUS *Suber*: The CORK-TREE; *an evergreen tree*; native of the ſouthern parts of Europe.

11. QUERCUS *Ilex*: The ILEX, or COMMON EVERGREEN OAK; *an evergreen tree*; native of Spain and Portugal.

12. QUERCUS *Coccifera*: The KERMES OAK; *a tall evergreen ſhrub*; native of France and Spain.

13. QUERCUS *Molucca*: The LIVE OAK: *an evergreen tree*; native of America.

1. The ENGLISH OAK will grow to great ſtature and live to a great age. EVELYN, whoſe learning and induſtry are evident in every page of his elaborate work, fatigues us with a tedious account of large trees, which either were growing in his time, or which he found in the mouth of tradition, or in the pages of learning and hiſtory. We would rather however refer our readers to his detail than either copy or abridge it; confining ourſelves to a few individuals of our own time, which now are (or were very lately) actually ſtanding in this kingdom. The COWTHORP-OAK, now growing at Cowthorp, near Wetherby in Yorkſhire, has been held out as the father of the foreſt. Dr. Hunter of York, in his brilliant edition of Mr. Evelyn's book, has favoured us with an engraving of this

tree; the dimenſions of which, as he juſtly obſerves, "are almoſt incredible." Within three feet of the ſurface, the Doctor tells us, "it meaſures ſixteen yards, and cloſe to the ground, twenty-ſix yards. Its height in its preſent ruinous ſtate (1776) is about eighty-five feet, and its principal limb extends ſixteen yards from the bole. Throughout the whole tree the foliage is extremely thin, ſo that the anatomy of the antient branches may be diſtinctly ſeen in the height of ſummer. When compared to this, all other trees (the Doctor is pleaſed to ſay) are but *children* of the foreſt." If indeed the above admeaſurement might be taken as the dimenſion of the *real ſtem*, its ſize would be truly enormous, and far exceed that of any other Oak in the kingdom. But the Cowthorp Oak has a ſhort ſtem, as moſt *very* large trees it is obſervable have, ſpreading wide at the baſe, the roots riſing above the ground like ſo many buttreſſes to the trunk, which is not like that of a tall-ſtemmed tree, a cylinder, or nearly a cylinder, but the fruſtum of a cone. Mr. MARSHAM gives us a plain and accurate account of this tree: He ſays, "I found it in 1768, at four feet, forty feet ſix inches; at five feet, thirty-ſix feet ſix inches; and at ſix feet, thirty-two feet one inch." Therefore in the principal dimenſion, *the ſize of the ſtem*, it is exceeded by the BENTLEY OAK; of which the ſame candid obſerver gives the following account: "In 1759, the Oak in Holt-Foreſt, near Bentley, was, at ſeven feet, thirty-four feet. There is a large excreſcence at five and ſix feet that would render the meaſure unfair. In 1778, this tree was increaſed half an inch, in nineteen years. It does not appear to be hollow, but by the trifling increaſe I conclude it not ſound." Extraordinary, however, as theſe dimenſions may appear, they are exceeded by thoſe of the BODDINGTON OAK; a tree which we believe does not appear any where upon record, except it be alluded to in Mr. EVELYN's Liſt. This Oak grows in a piece of rich graſs land, called the Old-Orchard Ground, belonging to Boddington Manor-Farm, lying near the turnpike-road between Cheltenham and Tewkſbury, in the Vale of Gloceſter. The ſtem is remarkably collected and ſnug at the root, the ſides of its trunk being more upright than thoſe of large trees in general; nevertheleſs its circumference at the ground, as near to it as one can walk, is twenty paces: meaſuring

ing with a two-foot rule, it is ſomewhat more than eighteen yards. At three feet high it meaſures forty-two feet, and at its ſmalleſt dimenſions, namely, from five to ſix feet high, it is thirty-ſix feet. At about ſix feet it begins to ſwell out larger; forming an enormous head, which heretofore has been furniſhed with huge, and in all probability extenſive arms. But age and ruffian winds have robbed it of a principal part of its grandeur; and the greateſt extent of arm at preſent (1783) is eight yards, from the ſtem. From the ground to the top of the crown of the trunk is about twelve feet; and the greateſt height of the branches, by eſtimation, forty-five feet. The ſtem is quite hollow; being, near the ground, a perfect ſhell; forming a capacious well-ſized room; which at the floor meaſures, one way, more than ſixteen feet in diameter. The hollowneſs, however, contracts upwards, and forms itſelf into a natural dome, ſo that no light is admitted except at the door, and at an aperture or window in the ſide. It is ſtill perfectly alive and fruitful, having this year a fine crop of acorns upon it. It is obſervable in this (as we believe it is in moſt old trees), that its leaves are remarkably ſmall; not larger, in general, than the leaves of the Hawthorn.

In contemplating theſe wonderful productions of nature we are led to conjecture the period of their exiſtence: Mr. MARSHAM in his Paper publiſhed in the Firſt Volume of the Tranſactions of the Bath Agriculture Society, has given us ſome very ingenious calculations on the age of trees; and concludes that the Tortworth Cheſnut is not leſs than eleven hundred years old. We have however ſhewn under the Article CHESNUT, that Mr. MARSHAM is miſtaken in the dimenſions of that tree. Nevertheleſs, if it ſtood in the days of King John, ſix centuries ago, and was then called the Great Cheſnut*, we may venture to ſuppoſe it not much leſs than one thouſand years of age; and further, if we conſider the quick growth of the Cheſnut compared with that of the Oak, and at the ſame time the inferior bulk of the Tortworth Cheſnut to the Cowthorp, the Bentley, and the Boddington Oaks; may we not

* As Tradition ſays it was.

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venture to infer, that the exiſtence of theſe truly venerable trees commenced ſome centuries prior to the era of Chriſtianity?

The root of the Oak ſtrikes deep, eſpecially the middle or tap-root, which has been traced to a depth nearly equal to the height of the tree itſelf: nor do the lateral roots run ſo ſhallow and horizontal as thoſe of the Aſh and other trees; but perhaps the roots of very few trees range wider than thoſe of the Oak. The ſtem of the Oak is naturally ſhort, and if left to itſelf, in an open ſituation, it will generally feather to the ground. It has not that upright tendency as the Aſh, the Eſculus, and the Pine-tribe: nevertheleſs, by judicious pruning, or by planting in cloſe order, the Oak will acquire a great length of ſtem: in this caſe, however, it rarely ſwells to any conſiderable girt. Mr. MARSHAM indeed mentions one in the Earl of Powys's Park near Ludlow, which in 1757 meaſured, at five feet, ſixteen feet three inches, and which ran quite ſtraight and clear of arms near or full ſixty feet. But, as has before been obſerved, Oaks which endure for ages have generally ſhort ſtems; throwing out, at ſix, eight, ten, or twelve feet high, large horizontal arms; thickly ſet with crooked branches; terminating in clubbed abrupt twigs; and cloſely covered with ſmooth gloſſy leaves; forming the richeſt foliage, irregularly ſwelling into the boldeſt outline we know of in nature. The Pine-tribe and the Eſculus may be called elegant or beautiful; but the general aſſemblage of a lofty full-furniſhed Oak is truly ſublime.

It is ſomewhat extraordinary, that the moſt *ornamental* tree in nature ſhould, at the ſame time, be the moſt *uſeful* to mankind. Its very leaves have been lately found to be of eſſential uſe to the gardener; the huſbandman is well acquainted with the value of its acorns; and every Engliſhman experiences daily the uſeful effects of its bark. It is wholly unneceſſary to mention the value of its timber: it is known to the whole world. The Oak raiſed us *once* to the ſummit of national glory: and *now* we ought to hold in remembrance that our exiſtence as a nation depends upon the Oak. If therefore our fore-fathers, merely from the magnitude and majeſty of its appearance, the veneration due to its age, and gratitude perhaps for ſome few economical uſes they might apply it to, paid divine honours to this tree; how much more behoves it us, circumſtanced as we are, to pay

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due homage to this our national ſaviour! How could our Kings be inveſted with the enſigns of royalty, or our Creator receive at ſtated times the gratitude and praiſe which we owe to him, with greater propriety than under the ſhadow of this ſacred tree? Acts like theſe would ſtamp it with that reſpectability and veneration which is due to it: and to corroborate theſe ideas, as well as to inſtitute ſuch laws as might be found neceſſary, the ſtate of the growth of Oak in Great Britain ought to be a ſtanding enquiry of the Britiſh Legiſlature. It is far from being impracticable to have annual returns of Oak fit for ſhip-building in every pariſh in the kingdom; with the diſtance it ſtands from water-carriage. It avails but little our making laws of police, or forming foreign alliances, unleſs we take care to ſecure in perpetuity the defence of our own coaſt. It is idle to think of handing down to poſterity a national independency, if we do not at the ſame time furniſh them with the means of preſerving it.

The PROPAGATION of the ENGLISH OAK. We do not purpoſe in this place to give directions for raiſing woods or plantations of Oak: this we reſerve until we come to treat of plantations in general, under the title WOODLANDS; for by collecting the more uſeful trees into one point of view, we ſhall be better able to judge of their comparative value; and the methods of raiſing the ſeveral ſpecies for the purpoſe of timber (ſhip-timber excepted) being nearly the ſame, we ſhall be enabled to give our directions more fully, yet upon the whole much more conciſely, than we could have done, had we retailed them ſeparately under each article: therefore, we mean to abide by the ſame rule under the preſent head that we have obſerved throughout this part of our work; namely, to treat of the plant under conſideration merely as a *nurſery plant*.—There are various opinions about the *choice of acorns*; *authors* in general recommend thoſe of "fair, ſtraight, large and ſhining trees;" but *nurſerymen*, we believe, pay little attention as to the tree from which the acorns are gathered. And indeed, when we conſider that the ſeeds of the diſtinct *varieties* of any individual ſpecies of plants produce one and the ſame ſeedling-ſtock, or a ſimilar variety of ſeedling plants, we muſt conclude that little attention is due. If however it be true that the ſeeds of ſome *varieties* pro-

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duce *more* of its own kind than thoſe of other *varieties* of the ſame ſpecies, it may be worth the trouble, when only a ſmall quantity of ſeed is wanted, to gather it from the moſt valuable tree. The *preſervation of Acorns* is extremely difficult; if we ſow them in autumn, they become obnoxious to vermin and birds; if we keep them above-ground, it is very difficult to prevent their ſprouting, and at the ſame time preſerve their vegetating power. Upon the whole, the fall of the Acorn ſeems the propereſt *time of ſowing*. For ſpring ſowing February and March are the proper months. The uſual *method of ſowing* is either in drills, or promiſcuouſly in beds, covering them about two inches deep. But we would rather recommend placing them in beds in the quincunx manner, from four to ſix inches apart, covering them one half to two and a half inches deep, according to the ſtiffneſs or lightneſs of the ſoil. Sowing ſeeds in drills renders them peculiarly obnoxious to mice and rooks; and by ſcattering them promiſcuouſly the plants are liable to come up double and irregularly, and the uſe of the hoe is precluded. The oakling riſes the firſt ſpring after ſowing. The ſeedling plants, having ſtood two years in the ſeed-bed, ſhould be removed into the nurſery, placing them in rows from two and a half to three feet aſunder, and the plants from nine to twelve inches in the rows; the tap-root and all long ſprawling fibres having been firſt taken off, and the top trimmed to a ſwitch, if tolerably ſtraight, or, if deformed or maimed, cut down within two or three inches of the ground; remembering to ſort the plants as directed in the introductory part of our work. Having remained two or three years in the nurſery, they will be ready to be planted out into fenced plantations. Such as are wanted to be trained for ſtandards, may be removed into ſome vacant ground; firſt pruning them in the conoidic manner, and afterwards remembering from time to time to pay proper attention to their leaders.

The Engliſh Oak admits of ſome *varieties*: indeed, if we attend minutely to particulars, we ſhall find them almoſt infinite. There is one variegation under the name of the *Stripe-leaved Oak*: But the moſt intereſting variety of the Engliſh Oak is the *Lucombe* or *Devonſhire Oak*. In the Sixty-ſecond Volume of the Philoſophical Tranſactions, a particular account is given of this

this Oak; ſetting forth that Mr. LUCOMBE, a gentleman of Devonſhire, having, about the year 1765, ſowed a parcel of acorns ſaved from a tree of his own growth, and obſerving that one of the ſeedling plants preſerved its leaves through the winter, he paid particular attention to it, and propagated, by grafting, ſome thouſands from it. Its being an evergreen is not the only peculiarity of this variety; it has a ſomewhat more upright tendency, and ſeems to be of a quicker growth, than Oaks in general. The plants however, which we have ſeen, do not anſwer altogether the deſcription given in the account abovementioned; but as they are now in the hands of almoſt every Nurſeryman, we forbear ſaying any thing further reſpecting them.

2. The WILLOW-LEAVED OAK will grow to be a large timber-tree. It receives its name from its leaves reſembling very much thoſe of the Common Willow. Theſe long narrow leaves have their ſurface ſmooth, and their edges entire; and their acorns will be almoſt covered with their large cups.

There are ſeveral *varieties* of this ſort; ſome having ſhorter leaves, others broader, and hollowed on the ſides; ſome large acorns, others ſmaller, &c. all of which are included under the appellation of Willow-leaved Oaks.

3. The CHESNUT-LEAVED OAK. This alſo will grow to be a large timber-tree; and in North America, where it grows naturally, the wood is of great ſervice to the inhabitants. It is ſo called, becauſe the leaves greatly reſemble thoſe of the Spaniſh Cheſnut-tree. They are about the ſame ſize, ſmooth, and of a fine green colour.

There are two or three *varieties* of this ſort; but the leaves of all prove that they are of the ſpecies called the Cheſnut-leaved Oak; ſo that nothing more need be obſerved, than that the leaves of ſome ſorts are larger than thoſe of others; that the acorns alſo differ in ſize, and grow like thoſe of our Engliſh Oak, on long or ſhort footſtalks as it ſhall happen.

4. The BLACK OAK is a tree of lower growth, it ſeldom riſing to more than thirty feet high. The bark of this tree is of a very dark colour, which occaſioned its being named the Black Oak. The leaves are ſmooth, very large, narrow at their baſe, but broad at their top, being in ſhape like a wedge: They have indentures

indentures at the top, ſo as to occaſion its having an angular look; they are of a ſhining green colour, and grow on ſhort footſtalks on the branches.

There is a *variety* or two of this ſort, particularly one with *trifid leaves*, and another ſlightly trilobate, called the *Black Oak of the Plains*, the leaves and cups of all which are ſmall.

5. Red Oak. The Red Oak will grow to be a timber-tree of ſixty or ſeventy feet high, and the branches are covered with a very dark-coloured bark. It is called the Red Oak from the colour of its leaves, which in the autumn die to a deep red colour.

There are ſeveral *varieties* of this ſpecies, the leaves of which differ in ſize and figure; but thoſe of the larger ſort are finely veined and exceeding large, being often found ten inches long and five or ſix broad: They are obtuſely ſinuated, have angles, and are of a fine green colour in the firſt part of the ſummer, but afterwards change by degrees to red, which is mark enough to know theſe trees to be of this ſpecies. There are ſeveral varieties of this tree, which exhibit a manifeſt difference in the ſize of the leaves, acorns, and cups. That is the beſt which is commonly called the *Virginian Scarlet Oak*; and the bark is preferred for the tanners uſe before that of all the other ſorts.

6. The White Oak. The White Oak will not grow to the ſize of the former, it ſeldom being found higher than forty feet even in Virginia, where it grows naturally. But though the timber is not ſo large, yet it is more durable, and conſequently of greater value for building to the inhabitants of America, than any of the other ſorts. The branches of this tree are covered with a whitiſh bark; the leaves alſo are of a light colour. They are pretty large, being about ſix inches long and four broad. They have ſeveral obtuſe ſinuſes and angles, and are placed on ſhort footſtalks.

There is a *variety* or two of this ſpecies; and the acorns are like thoſe of our Common Oak.

7. The Italian Oak will grow to about the height of thirty feet. The branches are covered with a dark-purpliſh bark. The leaves are ſmooth, and ſo deeply ſinuated as to have ſome reſemblance

ſemblance of pinnated leaves; and each has a very ſhort footſtalk. The fruit of this ſpecies ſits cloſe to the branches. The cups are in ſome degree prickly and rough, and each contains a long ſlender acorn, that is eatable. This (ſays HANBURY) is the true *Phagus* of the Greeks, and the *Eſculus* of Pliny; in the places where theſe trees grow naturally the acorns are, in times of ſcarcity, ground into flour, and made into bread.

8. The SPANISH OAK will grow to be as large a tree as our Common Oak, and is no way inferior to it in ſtatelineſs and grandeur; for the branches will be far extended all around, cauſing, with the leaves, a delightful ſhade. Though the bark of theſe branches is of a whitiſh colour, yet they are nevertheleſs ſpotted with browniſh ſpots. The leaves are of an oblong oval figure, but not very long, ſeldom being longer than three inches, and two broad. They are ſmooth, and have their edges deeply ſerrated: Theſe ſerratures are acute, and chiefly turn backwards. Their upper ſurface is of a fine light green colour, and their under of an hoary caſt; and with theſe beautiful leaves each branch is plentifully ornamented all over the tree. The cups are moſt peculiar and ſingular; for they are very large, and compoſed of ſeveral rough, black, large ſcales, that lap over one another like the ſcales of a fiſh. They almoſt cover the acorn, though they are pretty large, narrow at the bottom, but broader higher, and have their tops flat. The Greeks call the acorns *Velani*, and the tree itſelf *Velanida*. The acorns are uſed in dyeing.

9. The AUSTRIAN OAK is of lower growth than the preceding ſpecies, it ſeldom riſing to more than forty feet high. The leaves are of two colours; their upper ſurface being of a fine green colour, and their under downy. Their figure is oblong; but they are ſo indented about the middle as to make them have the reſemblance of a lyre. They are wing-pointed, tranſverſely jagged, and ſtand on ſlender footſtalks on the branches. The cups of this ſort alſo are ſmaller and prickly, and the acorns alſo proportionally ſmaller than thoſe of the preceding ſpecies.

All theſe foreign deciduous ſorts may be PROPAGATED from the acorns, which muſt be procured from the places where the trees naturally grow. They ſhould be ſown as ſoon as poſſible after

after they arrive; and if any of them have ſprouted, great care muſt be uſed in taking them out of the boxes in which they were conveyed. Any ſort of our common garden-mould, made fine, will ſuit them; and they ſhould be ſown in drills, in beds an inch deep. The firſt ſpring after ſowing, the plants will come up; they ſhould be always kept clean from weeds, and if they are watered in dry weather, it will be the better. They will want no preſervation in winter; for they are all very hardy, even when young. In March they ſhould be all taken out of the ſeed-bed, have their tap-roots ſhortened, and be planted in the nurſery-ground a foot aſunder, and two feet diſtant in the rows, where they may ſtand, with the uſual nurſery care, until they are to be planted out.

The STRIPED-LEAVED OAK is uſually PROPAGATED by inarching into the Common Oak; but it is beſt increaſed by grafting. In the ſame manner, alſo, any particular variety belonging to the other ſpecies may be continued and multiplied.

EVELYN ſays the Oak "will endure the LAYING, but never to advantage of bulk or ſtature."

10. The CORK-TREE admits of two *Varieties*:

The Broad-leaved Cork-Tree,
The Narrow-leaved Cork-Tree.

The *Broad-leaved Cork-Tree* is a timber-tree in Portugal and Spain, and other ſouthern parts of Europe, where it grows naturally. In our preſent plantations, it ſhould be placed near the middle of our largeſt quarters, among others of about forty feet growth; and a few alſo ſhould be planted ſingly in opens, that its fungous bark may be in view: not that there is any great beauty merely in the ſight, but with us it is a curioſity; being the true Cork, and is of the ſame nature with what comes from abroad, and we uſe for bottles, &c. Thus rough and ſpongy is the bark on the trunk and main branches; but the bark on the young ſhoots is ſmooth and grey, and that on the youngeſt white and downy. The leaves are of an oblong, oval figure, with ſawed edges. Their upper ſurface is ſmooth, and of a ſtrong green colour, but their under is downy. They grow alternately on the branches, on very ſhort though ſtrong footſtalks, and indeed differ in appearance very little from many ſorts of the *Ilex*. As the flowers of the *Quercus* make no ſhow, we

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ſhall proceed to the next ſort, after obſerving, that the acorns of the Cork-tree are longiſh, ſmooth, and brown when ripe, and of the ſize and ſhape of ſome of our common acorns, to which they are ſo much alike, as not to be diſtinguiſhed, if mixed together.

The *Narrow-leaved Cork-tree* is a variety only of the common and moſt general ſort; ſo that as this article requires nothing more than obſerving that the leaves are ſmaller, and as ſuch make a variety in plantations, it may not be amiſs to ſay ſomething of the Cork, which we receive from abroad, and which is collected from theſe trees. The beſt cork, then, is taken from the oldeſt trees, the bark on the young trees being too porous for uſe. They are, nevertheleſs, barked before they are twenty years old; and this barking is neceſſary, to make way for a better to ſucceed; and it is obſervable, that after every ſtripping the ſucceeding bark will encreaſe in value. They are generally peeled once in ten years, with an inſtrument for the purpoſe; and this is ſo far from injuring the trees, that it is neceſſary, and contributes to their being healthy; for without it they thrive but ſlowly; nay, in a few years they will begin to decay, and in leſs than a century a whole plantation will die of age; whereas thoſe trees that have been regularly peeled will laſt upwards of two hundred years. "Wonderful, then, is the wiſdom and goodneſs of Almighty God, and calls for our profoundeſt admiration, that he ſhould not only provide for us his creatures ſuch variety of things for uſe, but cauſe, as in this inſtance, what would be death to one tree, to be refreſhment to another, for the ſupply of our neceſſaries; and in the formation of this tree, not only cauſing the cork to grow, but providing alſo an interior bark ſufficient to nouriſh the tree, and even in a manner exhilarate it, as the loaded wool is ſhorn from the fleecy kind. To make our gardening to the utmoſt degree uſeful, we ſhould be always exerciſed in theſe conſiderations, and this will inſpire us with acts of gratitude and obedience." HANBURY.

11. The ILEX is a well-known Evergreen, of which there are many *varieties*, all of which add great beauty to the large quarters of Evergreen-trees. The bark of all theſe ſorts is entire, and that of the younger ſorts ſmooth; but the leaves are of different

ſhapes and compoſition, according to the nature of their variety. Some of them are nearly like thoſe of both ſorts of the Cork-tree; others again are nearly round and prickly; ſome are long, ſmooth, and narrow, with few indentures; whilſt others are broad and much ſerrated: All theſe *varieties* will often proceed from acorns gathered of the ſame tree; nay, the leaves of the ſame tree will not be always alike, being often found very different on the ſame plant; ſo that a quantity of plants of this ſpecies raiſed from ſeeds, will of themſelves afford conſiderable variety. The acorns of all theſe ſorts are of different ſizes, though their ſhape is nearly the ſame, which is like that of ſome ſorts of our Common Oak, but ſmaller. The moſt ſtriking *variety* of the *Ilex* is the *Holly-leaved Oak*, which differs from the other ſorts only that the leaves are ſhaped like thoſe of the Holly-tree. They are of an oblong, oval figure, ſinuated, prickly, and downy underneath; but many ſorts raiſed from ſeeds of the *Ilex* will have ſuch kind of leaves; and it conſtitutes no further a *variety*, than what may reaſonably be expected from a quantity of the acorns of the *Ilex* ſown.

12. KERMES OAK. This is a low-growing tree, and a fine Evergreen: It ſeldom grows to be twenty feet high, and it may be kept down to what height is required. It has the appearance of ſome of the ſorts of the *Ilex*, from which it looks to be a variety only, though doubtleſs this is of itſelf a diſtinct ſpecies. The leaves are ſmooth, and of an oval figure. They are of a thickiſh conſiſtence, and larger than moſt ſorts of the *Ilex*. Their verge is indented, and many of them are poſſeſſed of ſmall ſpines; and they are placed on ſhort ſtrong footſtalks on the branches. The acorns of this ſort are ſmall, though there are to be found in our woods acorns of about the ſame ſize and ſhape.

MILLAR ſays, "this is the Oak from which the Kermes or Scarlet Grain is collected, which is an inſect that harbours on this tree."

13. The LIVE OAK is common in America, where it grows to timber. The leaves are large, ſpear-ſhaped, oval, of a fine dark-green colour, entire, and placed on ſhort footſtalks on the branches. The acorns of this ſort are ſmall, though they grow in cups with footſtalks like the other ſorts. The wood of this

tree

tree is very uſeful to the inhabitants of Carolina, Pennſylvania, and Virginia, where it grows naturally, being very tough and hard, and ſerves for many purpoſes that require ſuch a ſort. The acorns ſerve for food for the meaneſt people, who not only eat them as ſuch, but, being of a very ſweet nature, they are liked by perſons of all ranks. From theſe acorns a ſweet oil alſo is extracted, which is very good.

There are many other *varieties* of the different ſpecies of Evergreen Oaks, which it will not be ſo neceſſary to ſearch for here, as the ſorts mentioned are the bulk of the tribe, and of themſelves afford much variety; and indeed, if much coſt and trouble were beſtowed in procuring others, the variety would be little heightened, particularly as the pleaſure received from the variation ariſes principally from the different forms of the leaves; for none of theſe trees produce flowers for ornament, and the acorns afford too minute a variety to require dwelling long on here.

All the ſpecies of EVERGREEN OAKS are to be raiſed from *acorns*, in the manner which has been directed for the foreign deciduous ſorts. The beſt acorns we receive from abroad; for they ſeldom ripen well with us.——The acorns which come from abroad, and which are by far the fineſt, often ſprout in the paſſage; ſo that care muſt be uſed in taking them out of what they are encloſed in, and they ſhould be put into the mould as ſoon as convenience will permit. Traps for mice, &c. muſt be ſet; and after they come up, they will want nothing but weeding for at leaſt three years; for I would not have them taken out of the ſeed-beds ſooner; eſpecially the ſorts of the *Ilex*; for when theſe have been pricked out of the ſeed-beds at one year old, they have ſeldom grown; and though ſometimes ſome of them will be green, and have the appearance of growing, during one ſummer, they will oftenеſt turn brown, and gradually go off afterwards. "After theſe plants have ſtood to be two or three feet high, I always found them more ſure of growing when moved. I have tranſplanted ſuch plants at moſt times of the year with ſucceſs; in the ſpring, in the depth of winter, and in the autumn, and have had them grow well when moved in July; and indeed I am pretty well perſuaded there is no

month in the year more proper than that for the removing of moſt ſorts of Evergreens, provided the weather be rainy or hazy at their planting, and ſhade can be afforded them for ſome time after." HANBURY.

Theſe trees may be alſo encreaſed by *inarching*, for they will grow very readily this way on ſtocks of our Common Oak; ſo that having a tree or two of any of the ſorts, if young Oaks are planted round each of them, after they have grown a ſummer or two, they will be ready to embrace the young ſhoot. After they are well joined, they may be cut off from the mother tree, and tranſplanted into the nurſery-ground, or where they are to remain, and freſh Oaklings planted round the trees to be multiplied; and the continuance of the repetition of this may be at pleaſure. In removing of the inarched plants, the time ſhould be obſerved as in removing young plants of our Common Oak, the roots ſtill remaining of that kind and nature.

Theſe trees will take by *grafting* on the young ſtocks of our Common Oak. The ſtocks ſhould be young and healthy, the cuttings ſtrong and good, and great care muſt be taken in properly joining and claying them, or they will not grow; which makes the inarching more neceſſary, as by that practice no cutting is in danger of being loſt.

RHAMNUS.

LINNEAN Claſs and Order, *Pentandria Monogynia*: Each flower contains five males and one female: There are twenty-ſeven SPECIES; ſeven of which may be admitted into our collection.

1. RHAMNUS *Catharticus*: The COMMON BUCKTHORN; *a tall deciduous ſhrub*; native of England, and (one of its varieties) of Spain, Italy and France.

2. RHAMNUS *Frangula*: The FRANGULA, or the BERRY-BEARING ALDER; *a deciduous ſhrub*; native of England and moſt of the northern parts of Europe.

3. RHAMNUS

3. RHAMNUS *Alpinus:* The ALPINE RHAMNUS, or the ROUGH-LEAVED FRANGULA; *a deciduous ſhrub*; native of the Alps.

4. RHAMNUS *Paliurus:* The PALIURUS, or THORN OF CHRIST, or CHRISTI THORN; *a deciduous ſhrub or tree*; native of Paleſtine, alſo of Spain, Portugal and Italy.

5. RHAMNUS *Alaternus:* The COMMON ALATERNUS; *an evergreen tree*; native of the South of Europe.

6. RHAMNUS *inſectorius:* The NARROW-LEAVED EVERGREEN BUCKTHORN; *an evergreen ſhrub or tree*; native of Spain.

7. RHAMNUS *Oleoides:* The OLIVE-LEAVED EVERGREEN BUCKTHORN; *an evergreen ſhrub*; native of Spain.

1. The COMMON BUCKTHORN. Of this ſpecies there are the following *varieties:* Dwarf Buckthorn, Long-leaved Dwarf Buckthorn, and the Common Buckthorn of our hedges. Variety is the ſole motive for admitting theſe ſorts into a collection. The flowers have no beauty to catch the attention; though their berries, their manner of growing, the colour of their bark in winter, and verdure of their leaves in ſummer, court us to admit a few of them.

Dwarf Buckthorn is a ſhrub of about a yard high. The branches grow irregular, and are covered with a blackiſh-coloured bark. The leaves are nearly oval, though they end in a point. They are ſcarcely an inch long, about half that breadth, and ſtand oppoſite by pairs for the moſt part. The flowers grow on ſhort footſtalks, on ſpurs, by the ſides of the branches. They are of a greeniſh colour, and make little ſhow.

Long-leaved Dwarf Buckthorn differs little from the other, only that it grows to be rather a larger ſhrub, and the leaves are longer. The flowers are about the ſame colour as the Dwarf ſort; but neither of theſe ſcarcely ever produce berries: This makes them much leſs valuable than our Common Buckthorn, which will exhibit its black berries in plenty in the autumn, either for ſhow or uſe.

Common Buckthorn is well known in England. Where it does not grow common about a habitation, a few of theſe ſhrubs ſhould be admitted; for it is a well-looking tree, either

in winter or ſummer, and its black berries in the autumn are no ſmall ornament. The Common Buckthorn will grow to be near ſixteen feet high, and will ſend forth numerous branches on all ſides. Theſe are ſmooth; and the bark is of a blueiſh colour. Many ſtrong ſharp ſpines come out from the ſides and ends of the branches. The leaves are oval, ſpear-ſhaped, about two inches long, and one broad. Their under ſurface is of a lighter green than the upper. They have ſerrated edges, and ſtand, ſometimes by pairs, ſometimes ſingly, on longiſh footſtalks on the branches. The flowers are produced in cluſters from the ſides of the branches, in June. Their colour is green; and they are ſucceeded by black berries, each containing four ſeeds. Syrup of Buckthorn is made of theſe berries, and is well known as a cathartic. From the juice of theſe berries alſo an admirable green colour is prepared, which is in great requeſt with miniature-painters.

All the ſorts of Buckthorn are eaſily PROPAGATED, either by ſeeds or cuttings. The ſeeds of the Purging Buckthorn may be gathered in plenty in moſt parts of England; but the ſeeds of the Dwarf ſorts muſt be procured from abroad, where they grow naturally, for they produce no ſeeds with us. They ſhould be ſown as ſoon as poſſible after they are ripe, in almoſt any kind of garden-mould made fine. They will not always come up the firſt ſpring; ſo that the beds muſt remain undiſturbed and weeded during the ſummer. After they are come up, and have ſtood in the ſeed-bed a year or two, they may be planted out in the nurſery-way, at ſmall diſtances. Theſe plants are alſo to be raiſed by cuttings, which ſhould be planted int he autumn; and if they are not planted very cloſe, they will want no removing until they are finally ſet out. If a large quantity of theſe plants is wanted, and little ground is prepared for the cuttings, they may be ſet very cloſe, and in the winter following taken up, and planted in the nurſery-way, like the ſeedlings. In two or three years, they may be planted out to ſtand.

2. FRANGULA, or BERRY-BEARING ALDER. This ſpecies affords us the following varieties: Common Black-berry-bearing Alder, Dwarf Berry-bearing Alder, and the American Smooth-leaved Berry-bearing Alder.

The *Common Black-berry-bearing Alder* will grow to the height of about ten feet. It will aſpire with an upright ſtem, and produce numerous branches on all ſides. The bark is ſmooth, of a blueiſh colour, and is all over ſpotted with white ſpots, which make it reſemble a blueiſh-grey. The leaves are oval, ſpear-ſhaped, and grow irregularly on the branches. They are about two inches long and one broad. Their upper ſurface is ſmooth and of a ſhining green, and their under ſurface is poſſeſſed of many ſtrong veins that run from the mid-rib to the edges. The flowers are produced in bunches in June, each having a ſeparate footſtalk. They are of a greeniſh colour, and make no ſhow; but they are ſucceeded by berries, which are firſt red, afterwards (when ripe) black, and are a great ornament to the tree.

Dwarf Berry-bearing-Alder is of very low growth. It ſeldom riſes higher than two feet. The branches are of a blueiſh-brown, and the leaves are nearly round. They are placed on ſhort footſtalks, and many ſtrong veins run from the mid-rib to the border. It makes no ſhow, either in the flowers or fruit; the firſt being ſmall, and the latter rarely happening.

American Smooth-leaved Berry-bearing Alder will arrive at the height of our common ſort; and hardly in any reſpect differs from it, either in leaves, flowers, or fruit.

3. ROUGH-LEAVED ALPINE FRANGULA, or Berry-bearing Alder, differs in no reſpect alſo from the common ſort, only that it is unarmed with thorns, will grow to be rather taller, and the leaves are tough, larger, and doubly laciniated.

There is a *variety* of this ſpecies, with ſmooth leaves and of rather lower growth, called the *Smooth-leaved Alpine Frangula.*

The method of PROPAGATING theſe ſorts of the Berry-bearing Alder is exactly the ſame as that laid down for the Buckthorn; and if thoſe rules are obſerved, any deſired quantity may be raiſed.

4. PALIURUS, or *Chriſti Thorn.* The PALIURUS will grow to be a tree of near fourteen feet high, and may be trained to an upright ſtem, which will ſend forth numerous ſlender branches on all ſides. Theſe are armed with ſharp thorns,

two of which are at each joint. One of these thorns is about half an inch long, straight and upright; the other is scarcely half that length, and bent backward. Between these is the bud for the next year's shoot. The bark on these twigs is smooth, and of a purplish colour, and the spines themselves are of a reddish cast. The joints alternately go in and out, forming at each bud an obtuse angle. The leaves are nearly of an oval figure, of a pale green colour, and stand on very short footstalks. They are small, being scarcely an inch in length, have three longitudinal veins, and are placed alternately on the branches. The flowers are produced in clusters from the sides of the young shoots. They are of a yellow colour; and though each single flower is small, yet they will be produced in such plenty all over the plant, that they may make a very good show. June is the time of flowering; and they are succeeded by a small fruit, that is surrounded by a membrane.

The plant under consideration, says HANBURY, "is undoubtedly the sort of which the crown of thorns for Our Blessed Saviour was composed. The branches are very pliant, and the spines of it are at every joint strong and sharp. It grows naturally about Jerusalem, as well as in many parts of Judæa; and there is no doubt that the barbarous Jews would make choice of it for their cruel purpose. But what farther confirms the truth of these thorns being then used, are the antient pictures of Our Blessed Saviour's crucifixion. The thorns of the crown on his head exactly answer to those of this tree; and there is great reason to suppose these were taken from the earliest paintings of the Lord of Life; and even now our modern painters copy from them, and represent the crown as composed of these thorns. These plants, therefore, should principally have a share in those parts of the plantation that are more peculiarly designed for religious retirement; for they will prove excellent monitors, and conduce to due reflection on and gratitude to *Him who hath loved us, and has washed us from our sins*," &c.

These deciduous sorts may be PROPAGATED by seeds and layers. The soil for the seed should be that taken from a fresh pasture, with the sward; and having lain a year to rot, and been turned three or four times, to this a fourth part of drift sand should be added; the whole being well mixed, the seeds

should

ſhould be ſown half an inch deep. They rarely come up before the ſpring twelve-month after ſowing; ſo that the beds muſt be undiſturbed all the ſummer, and kept free from weeds. After the plants are come up, they may ſtand a year or two in the ſeed-bed, and be then planted out in the nurſery, at the uſual diſtance: In about three years they will be fit to be finally planted out. Theſe plants may alſo be propagated by layers; but this is not always a very eaſy taſk, and it is ſeldom that plants can be obtained under two years. Nicking them like carnations is a very uncertain method to be practiſed on theſe twigs: for the end of the nick where the root is expected to ſtrike will ſwell, and be covered with a cloſe watery ſubſtance, without ſending out any fibres; and the branch growing in the ground will in two or three years grow this out, and thus all hopes of a root will be loſt. By twiſting them, alſo, is an uncertain method (though many plants may be raiſed this way); for if the twiſting be too great, you kill the twig deſigned for the layer; and if it is too little, you may look at the end of two or three years, and find no roots at your layers. However, by a gentle twiſt, juſt breaking the bark, plants may be raiſed. HANBURY continues, "Finding theſe methods precarious and uncertain, I had recourſe to another, by which I obtained numbers of plants. With a ſharp knife I made a gentle nick or two the depth of the bark, about the bud and thorns which are at a joint. Having done this in two or three places in every ſhoot, and having laid them in the ground, every twig had ſtruck root, and were become good plants by that time two years; many of which were fit to plant out for good, and the ſmaller proper for the nurſery-gound to gain ſtrength."

5. The ALATERNUS. The *varieties* of this Species are:

The Common Alaternus,
The Broad-leaved Alaternus,
The Jagged-leaved Alaternus.

The *Common Alaternus* is again *variegated:* There are of it, the Gold-ſtriped, the Silver-ſtriped, the Blotch-leaved, the large and the ſmaller growing *Alaternus*; and whoever is for having them in plantations of the preſent kind, will ſtill encreaſe the variety. This is indeed objected to by ſome, as, they ſay, they cannot be Evergreens; others again think they are moſt proper, as they retain their leaves, and appear amongſt others, of different

ferent colours, like flowers in ſummer. The branches of theſe ſorts of *Alaternus* are numerous; and the younger branches are covered with a ſmooth green bark. In winter, indeed, they will be brown, and ſome of a reddiſh colour; others will have their ſides next the ſun red, and the oppoſite green. The leaves are oval, of a lucid green in the common ſorts, and look very beautiful. Their edges are crenated, and they grow alternately on the branches. The flowers are produced in April, from the wings of the leaves, in little cluſters: They are of a greeniſh colour, but make no ſhow; and are ſucceeded by berries, which are very grateful to blackbirds, thruſhes, and the like kinds of birds.

The *Broad-leaved Alaternus* is the grandeſt looking tree of all the ſorts: It will grow to the greateſt height, if permitted to ſhoot freely, though it may be kept down to any height wanted. The leaves are the longeſt of any of the ſorts, and their edges are lightly crenated. They differ a little in figure from the preceding ſort, being more heart-ſhaped. They are of a fine ſhining ſtrong green colour, both in winter and ſummer; and this tree produces flowers and ſeeds like the other.

The *Jagged-leaved Alaternus* has as different a look from the other as any two Evergreens whatever. It is a well-looking upright tree, and the branches are covered with a ſmooth fine bark, which in winter is of a reddiſh colour. The leaves, like thoſe of all the ſorts, grow alternately. They are long and narrow, and are ſo jagged as to cauſe them to have a particular look. Their ſurface is ſmooth and ſhining, and their figure lanceolate; and this, together with the nature of their ſerratures, cauſes in the tree a beautiful as well as ſingular look. The flowers are produced in the ſame manner as the others; and are ſucceeded by berries, which are uſed by painters in compoſing ſome of their yellows. There are variegated ſorts of the Jagged-leaved *Alaternus* in both ſilver and gold ſtripes, which are indeed very beautiful; but they are very apt to turn green, if planted in a rich ſoil; ſo that to continue the ſtripes in perfection, the worſt ſort of hungry land ſhould be allotted them.

There are more varieties of the *Alaternus*, but their differences are ſo inconſiderable as ſcarcely to be worth enumerating. All the ſorts have been confounded by the unſkilful with thoſe of *Phillyrea*, which have indiſcriminately paſſed one for the other:

That the Gardener, therefore, may be guarded from running again into theſe errors, he muſt obſerve, that the leaves of all the ſorts of *Phillyrea* grow always oppoſite by pairs, whereas thoſe of the *Alaternus* grow ſingly and alternately on the branches, which firſt gave occaſion to the ſhrub's being ſo called. The Botaniſt will ſee a more material difference, when, upon examining the flowers, he finds they belong to diſtinct claſſes.

6. The NARROW-LEAVED BUCKTHORN grows to be a tree of ten or twelve feet high, ſending forth ſeveral branches from the ſides from the bottom to the top. They are covered with a blackiſh or dark-coloured bark, and each of them is terminated by a long ſharp thorn. The leaves are very narrow, fleſhy, aſtringent, of a ſtrong green colour, and grow together in bunches on the ſides of the branches. The flowers come out from the ſides of the branches in ſmall bunches: They are of an herbaceous colour, appear early in the ſpring, and are ſucceeded by large round berries, like thoſe of the Sloe-buſh, which are harſh and ſour to the taſte, and of a fine black colour when ripe. The fruit of this ſort continues on the trees all winter, making a beautiful appearance among the narrow cluſtered leaves at that ſeaſon.

7. OLIVE-LEAVED BUCKTHORN will grow to be eight or ten feet high, ſending forth numerous branches, each of which is terminated by a long ſharp ſpine. The leaves are ſmall, oblong, obtuſe, undivided, veined, ſmooth, of a thickiſh conſiſtence, and grow two or three together on their own ſeparate footſtalks. The flowers come out from the ſides of the branches in the ſpring. They are ſmall, of a whitiſh green colour; and are ſucceeded by round black berries, about the ſize and colour of thoſe of the Common Purging Buckthorn.

Theſe Evergreen ſorts are to be PROPAGATED, 1. By layers. This buſineſs muſt be done in the autumn, when the laſt ſummer's ſhoots ſhould be laid in the ground. Theſe will often ſtrike root at almoſt every joint; though they have been found in ſome ſtrong ſoils, upon examining them in the autumn, after being layered a whole year, without any roots; ſo that it would be proper to give the layer a ſlit at the joint, and bend it ſo in the ground as to keep it open; and it will have plenty of root by the autumn. Another thing to be obſerved is, that in order

to obtain good layers, the plants deſigned to be encreaſed ſhould be headed the year before, and this will cauſe them to ſhoot vigorouſly; and from theſe ſhoots the ſtrongeſt and beſt layers may be expected; many of which will be good plants, to ſet out where they are to remain, while the weakeſt may be planted in the uſual nurſery-way, to gain ſtrength. 2. Theſe plants may be raiſed by ſeeds, the variegated ones excepted, for they muſt always be encreaſed by layers. The ſeeds will be ripe in September, or the beginning of October, when they ſhould be guarded from the birds, or they will ſoon eat them all. Soon after they are ripe they ſhould be ſown, for even then they will often remain two years before they come up. The beds ſhould be compoſed of fine light mould, and they ſhould be ſown an inch deep. If few or no plants appear in the ſpring, you muſt wait, and weed the beds with patience, until the ſpring following, when you may expect a plentiful crop. Let them ſtand two years in the ſeed-bed, with conſtant weeding, and frequent watering in dry weather; and in March let them be planted out in the nurſery, where they will be afterwards ready for removing when wanted. As theſe trees produce plenty of good ſeeds, by this means a prodigious quantity of plants may be ſoon raiſed; and thoſe from ſeeds are always obſerved to grow ſtraighter, and to a greater height than thoſe raiſed from layers; ſo that where many of theſe trees are wanted for large plantations, the raiſing them from ſeeds is the moſt eligible method.

All the ſorts of *Alaternus* are very hardy, and may be planted in almoſt any ſoil or ſituation; but the Narrow and Olive-leaved Buckthorn ſhould be ſtationed in a dry, warm, well-ſheltered place.

RHODODENDRON.

LINNEAN Claſs and Order, *Decandria Monogynia:* Each flower contains ten males and one female; There are ſeven SPECIES: ſix of which are here treated of;

1. RHO-

1. RHODODENDRON *Ferrugineum* : The FERRUGINEOUS DWARF ROSE-BAY ; *a low deciduous ſhrub* ; native of the Alps, Apeninnes, and other mountains of Europe.

2. RHODODENDRON *Hirſutum* : The HAIRY DWARF ROSE-BAY ; *a low deciduous ſhrub* ; native of the Alps and many mountains of Switzerland and Auſtria.

3. RHODODENDRON *Chamæciſtus* : The CHAMÆCISTUS, or CILIATED-LEAVED DWARF ROSE-BAY ; *a low deciduous ſhrub* ; native of Mount Baldus, and near Saltzburg in Germany.

4. RHODODENDRON *Dauricum* : The DAURIAN DWARF ROSE-BAY ; *a low deciduous ſhrub* ; native of Dauria.

5. RHODODENDRON *Maximum* : The AMERICAN MOUNTAIN LAUREL ; *an evergreen ſhrub* ; native of Virginia.

6. RHODODENDRON *Ponticum* : The PONTIC DWARF ROSE-BAY ; *an evergreen ſhrub* ; native of the Eaſt, and of moſt ſhady places near Gibraltar.

1. The FERRUGINEOUS DWARF ROSE-BAY is a ſhrub of about two or three feet in growth. The branches are numerous, irregular, and covered with a dark-brown bark, having a tinge of purple. The leaves are of two very different colours ; the upper ſurface is of a fine green, but the under is of an iron colour. There will be numbers of theſe on every twig ; and they grow in a pleaſing irregular manner : They are of a lanceolated figure, have their ſurfaces ſmooth, and are little more than an inch long. Their edges are reflexed ; but they have no ſerratures, and, on the whole, conſtitute a great beauty when in leaf only. The flowers grow at the ends of the branches, in round bunches. Their petals are funnel-ſhaped, of a pale roſe colour, appear in June, and are rarely ſucceeded by ſeeds in England.

2. HAIRY DWARF ROSE-BAY is a ſhrub of about the ſame, or rather of a lower growth. The branches of this ſpecies alſo are numerous, and the bark with which they are covered is of a lightiſh brown colour. They are ornamented with plenty of leaves, in an irregular manner. They are not ſo large as thoſe of the former ſort ; but are of the ſame figure, only a little more inclined to an oval. They ſit cloſe to the branches, and have no ſerratures, but hairs on their edges like the eye-laſhes. Their under ſurface alſo is poſſeſſed of the ſame ſort of hairs, which

are all of an iron colour. The flowers will be produced at the ends of the branches, in bunches, in May. Theſe are alſo funnel-ſhaped, of a light-red colour, make a good ſhow, and are ſucceeded by oval capſules, containing ripe ſeeds, in Auguſt.

3. CHAMÆCISTUS, or CILIATED DWARF ROSE-BAY, will grow to be about a yard high. The branches are numerous, produced irregularly, and covered with a purpliſh bark. The leaves are produced in great plenty, and without order, on the branches. They are oval, ſpear-ſhaped, ſmall, and their under ſurface is of the colour of iron. The edges alſo are poſſeſſed of many iron-coloured hairs, which are placed like thoſe on the eyelids. The flowers are produced at the ends of the branches, in bunches. They are of a wheel-ſhaped figure, pretty large, of a fine crimſon colour, and make a handſome ſhow. They appear in June, and are ſucceeded by oval capſules, containing ripe ſeeds, in September.

4. DAURIAN DWARF ROSE-BAY is a low ſhrub, ſending forth many branches covered with a browniſh bark. The leaves are broad, naked, ſmooth, and come out without order on ſhort footſtalks. The flowers are wheel-ſhaped, large, and of a beautiful roſe colour: They appear in May; and are ſucceeded by oval capſules full of ſeeds, which do not always ripen in England.

All theſe deciduous ſorts are PROPAGATED beſt by the ſeeds, and as they grow naturally on the Alps, Apennines, and other ſnowy and cold mountains, and are ſeldom made to grow and flouriſh fair in gardens, it will be the beſt way for a Gentleman who has extended his plantation, and has any part of it mountainous, hilly, or rocky, on the north ſide, to get ſome ſpots well cleared of all roots and weeds; and theſe being made fine and level, let the ſeeds be ſown therein. They will want no covering; a gentle patting down with the ſpade will be ſufficient; for the ſeeds are ſo exceeding ſmall, that they will be waſhed into the ground deep enough by the firſt ſhower of rain that follows. Whoever is not content with ſowing ſeeds, and covering them no more than what they will get by being patted down, muſt only lightly duſt ſome earth over them; for if they are covered half an inch, the general depth for moſt ſeeds, you muſt expect no crop. After the young plants come

up,

up, they muſt be watered in dry weather, weeded, and in the winter protected from the froſts, which will deſtroy them. And here one thing is to be obſerved, that though the north ſide, at the foot of or on a hill, is thought moſt proper for their growth, as being moſt ſuitable to their nature, yet a place muſt be choſen for them that has trees and hedges to ſhelter them from the northern black froſts; for theſe trees, hardy as they are, will be liable to be deſtroyed by them, for want of ſnow, as in other places, to cover them and keep them warm in the winter ſeaſon. After theſe plants are come up, they ſhould be thinned; and leaving only a proper number in each reſpective place, and being protected for the firſt two or three winters, either by mats or hand-glaſſes, in the ſevereſt weather, they will be afterwards ſtrong enough to be left to themſelves, eſpecially if the places are tolerably ſheltered. If a gardener has no other ground than his ſeminary for raiſing plants, his beſt method will be to prepare a compoſt for theſe ſeeds in the following manner: Take four buſhels of earth from ſome neighbouring hill, which if rocky, that neareſt the ſurface, on which the ſheep have been uſed to lie and dung, will be the beſt; but if it be of any other nature, the mould neareſt the ſurface, mixed with the following, will do very well: Take ſix buſhels of maiden earth, from a rich loamy paſture, that has been dug up with the ſward, and by frequent turning is well rotted and mixed, and four buſhels of drift or ſea-ſand. Let theſe be well mixed together, and of this let the bed be made. The bed being made level and fine, the ſeeds ſown, and gently patted down with the ſpade, or at fartheſt no other covering than being gently duſted over with the fineſt mould, may be left to nature. This bed ſhould be in a ſhady well-ſheltered place; and the plants after they are come up ſhould be weeded and watered in the ſummer, and protected from froſts by mats in the winter. In the ſpring they may be pricked out in beds in the nurſery-ground, at a very ſmall diſtance, that they may be hooped and matted if the following winter ſhould prove very ſevere. The ſecond winter they will require no other trouble than pricking furze-buſhes round the bed for their defence; and after that they may be ſet out to ſtand.

5. The American Mountain Laurel is a plant ſo diſtinguiſhed becauſe, in America, it grows naturally upon the higheſt

higheſt mountains, and on the edges of cliffs, precipices, &c. There it will grow to be a moderate-ſized tree; with us it ſeldom riſes higher than ſix feet. The branches are not numerous, neither are they produced in any order. The leaves are large and beautiful, of an oval ſpear-ſhaped figure, and a little reſemble thoſe of our Common Laurel. They are of a ſhining ſtrong green on their upper ſurface, though paler underneath; but they loſe this delicacy as they grow older, altering to a kind of iron-colour. Their edges are acutely reflexed, and they grow irregularly on ſhort footſtalks on the branches. The flowers are produced at the ends of the branches about Midſummer, though ſometimes ſooner; before which time the buds will be large and turgid; and indeed, as they begin to ſwell early in the autumn before, theſe have a good effect, and look well all winter. When the ſhrub is in blow, the flowers appear cloſe to the branches, in roundiſh bunches. Each is compoſed of one petal, which is divided at the rim into five parts, one of which is dotted in a pretty manner. They are very beautiful, and alter their colour as they grow older; for at firſt the petal is of a very pale bluſh colour, which dies away to a white; but the outſide, which is a peach colour, is not ſubject in ſo high a degree to this alteration. They will continue, by ſucceſſion, ſometimes more than two months; and are ſucceeded by oval capſules, full of ſeeds.

6. PONTIC ROSE-BAY grows to about four or five feet high, ſending forth ſeveral branches without order from the ſides. The leaves are ſpear-ſhaped, gloſſy on both ſides, acute, and placed on ſhort footſtalks on the branches. The flowers are produced in cluſters from the ends of the branches; each of them is bell-ſhaped, and of a fine purple colour. They appear in July; and are ſucceeded by oval capſules containing the ſeeds, which ſeldom ripen in England.

The PROPAGATION of theſe Evergreen ſorts muſt be from ſeeds, which we receive from the places where they grow naturally. The beſt way is to ſow them very thin in the places where they are deſigned to remain; and if theſe places be naturally rocky, ſandy, and ſhady, it will be ſo much the better (eſpecially for the firſt ſort; the ſecond requires a moiſtiſh ſoil, in a warm ſhady place); if not, a quantity of drift-ſand muſt be added to the natural ſoil, and all made fine and level. Some ſpots for

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the reception of the ſeeds are to be pitched on. A few ſeeds ſhould be put in each, and covered about half an inch deep, and then ſome ſticks ſtuck round them to direct to the true places, that they may not be diſturbed by hoeing the weeds, but that theſe may be all carefully plucked up by the hand as often as they appear; for it will be a whole year, and ſometimes two or more, before the plants come up. This careful weeding muſt always be repeated; and after the plants come up, thoſe that grow too cloſe may be drawn the ſpring following, and each ſet in a ſeparate pot, and then plunged into a hotbed, to ſet them growing. The plants that remain without removing will be the ſtrongeſt and beſt, and will be more likely to produce flowers than any other; though this ſeems to be a plant that will bear tranſplanting very well, eſpecially if it is not to be carried at too great a diſtance for the roots to dry, and a ball of earth be preſerved to them. Whenever they are not to be raiſed and remain in the places, the beſt way is to ſow them in pots filled with ſandy earth, or ſuch as is made ſo by at leaſt a third part of ſand being added. After the plants come up, they may be planted in ſeparate pots the ſpring following, and then ſet forward by a plunge in the bed; and afterwards they may be any time turned out into the places where they are to remain, which ought to be in a naturally ſandy ſituation, otherwiſe there will be little hopes of ſeeing them in any degree of perfection.

R H U S.

LINNEAN Claſs and Order, *Pentandria Trigynia:* Each flower contains five males and three females. There are twenty-four SPECIES; eight of which are ſufficiently hardy to ſtand this climate.

1. RHUS *Coriaria:* The TANNER'S SUMACH, or the ELM-LEAVED SUMACH; *a tall deciduous ſhrub*; native of Turkey, Paleſtine, Syria, Italy and Spain.

2. RHUS *Typhynum*: The VIRGINIA SUMACH; *a deciduous ſhrub*; native of Virginia.

3. RHUS *Glabrum*: The SMOOTH SUMACH; *a tall deciduous ſhrub*; native of North-America.

4. RHUS *Coppallinum*: The LENTISCUS-LEAVED SUMACH; *a deciduous ſhrub*; native of North-America.

5. RHUS *Vernix*: The VARNISH TREE, or POISON ASH TREE; *a deciduous ſhrub*; native of North-America, alſo of Japan.

6. RHUS *Toxicodendron*: The TOXICODENDRON, or POISON OAK; *a low deciduous ſhrub*; native of North-America.

7. RHUS *Radicans*: The RADICANT TOXICODENDRON; *a deciduous ſhrub*; native of Virginia and Canada.

8. RHUS *Cotinus*: The VENETIAN SUMACH, or COCCYGRIA; *a deciduous ſhrub*; native of Italy, Spain, and many parts of Europe.

1. The TANNER'S SUMACH will grow to be about twelve feet high; and the branches are covered with a browniſh hairy bark. It is ſaid that this bark is equal to that of the Engliſh Oak for tanning of leather, and that the leather from Turkey is chiefly tanned with it. The leaves of this ſhrub, which are placed alternately on the branches, have a grand look. They are pinnated, and each ends with an odd foliole. The mid-rib of each is garniſhed with about eight pairs of folioles, which all terminate with an odd one. The folioles of which the compound leaf is compoſed are oval, and not large, being ſcarcely two inches long, and three-fourths of an inch broad; but the whole leaf makes a fine ſhow. Their colour is a light-green; their under ſurface is hairy, and they are ſawed at their edges. The flowers, which are produced in large bunches at the ends of the branches, are of a whitiſh colour, with a tinge of green. Each is compoſed of many ſpikes, on which the flowers ſit cloſe. They come out in July; but are not ſucceeded by ripe ſeeds in England, like ſome of the ſubſequent ſorts. The leaves and ſeeds are poſſeſſed of many excellent virtues.

2. VIRGINIA SUMACH. Of this ſpecies there are ſeveral *varieties*; ſuch as, the Common Stag's Horn, Large Virginian, and Dwarf Sumach.

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The *Stag's Horn Sumach* is ſo called from the younger branches much reſembling a ſtag's horn, called the Velvet Horn. It will grow to be about ten feet high, and the older branches are covered with a ſmooth browniſh bark, in ſome places of a greyiſh colour, whilſt the younger ones are covered with a hairy down, which much reſembles the velvet horn of a ſtag. The leaves have a noble look; for they are large and pinnated. The folioles are oblong, and larger than thoſe of the preceding ſort: about ſeven pairs are ſtationed along the mid-rib, which are terminated by an odd one. Their under ſurface is hairy, and they die to a purpliſh ſcarlet in the autumn. The flowers are produced in June, at the ends of the branches: they will be in large tufts, but make no ſhow; though ſome admire them when ſucceeded by ſeeds in the autumn; for at the end of that ſeaſon, even after the leaves are fallen, there will be large tufts of ſeeds, of a ſcarlet colour, left at the ends of the branches, which have an uncommon appearance.

The *Large Virginian Sumach* differs in no reſpect from the preceding ſpecies, only that it ſhoots ſtronger, and grows to be larger, even ſixteen or eighteen feet high, and is a more regular tree. The young ſhoots alſo are of a more reddiſh colour; and though poſſeſſed of the like hairy down, on the whole do not ſo much reſemble thoſe of the velvet ſtag's horn as the other.

Dwarf Sumach differs in no reſpect from the Common Stag's Horn, except that it is of a very low growth, ſeldom riſing higher than three feet.

3. Smooth Sumach. This includes many notable *varieties*, commonly called New-England, Smooth Carolina, and Canada Sumach.

New England-Sumach will grow to about ſixteen feet high, ſending forth many ſtrong ſhoots from the root and the ſides, covered with a ſmooth downy bark. The radical ſhoots will often be near an inch in diameter in one ſummer's growth. The young branches alſo from the ſides will be large: they are ſmooth, though a little downy in the ſummer; and the bark in the winter is of a light-brown colour. The leaves of this ſort are the largeſt of any, being compoſed of ten or

more pairs of folioles, proportionally large, and which are terminated by an odd one. The flowers are produced at the ends of the branches, in large looſe panicles: They are of a greeniſh-yellow colour, and come out in June, but are not ſucceeded by ſeeds with us.

The *Carolina Sumach* ſeldom riſes to more than ten feet high, The branches are ſmooth, of a fine purpliſh colour, and duſted over with a whitiſh powder. The leaves are pinnated like the other, and the flowers are produced in panicles at the ends of the branches. They are of a fine ſcarlet colour, appear in July, and are ſucceeded by bunches of ſeeds, which in autumn are of a very beautiful red, though they never ripen in England.

The *Canada Sumach* grows to about ten feet in height, and the branches, which are ſmooth and of a purpliſh colour, are duſted over, like the former, with a kind of whitiſh powder. The leaves are pinnated like the other, and the folioles are on both ſides ſmooth; but their ſurfaces are of two colours, the upper being of a ſhining green, whilſt the under is hoary. The flowers are red, and produced in July, in large panicles, at the ends of the branches. They appear as if a whitiſh powder had been duſted in among them, which attracts notice; but their ſeeds do not ripen in England.

4. LENTISCUS-LEAVED SUMACH. The chief *varieties* of this ſpecies are, the True Lentiſcus-leaved, and the Canada Lentiſcus-leaved Sumach.

The *True Lentiſcus-leaved Sumach* ſeldom riſes to more than four feet in height, and the branches are covered with a ſmooth brown bark. The leaves alſo are pinnated, and are the moſt beautiful of all the ſorts; for the folioles, though ſmall, are of a ſhining green. There are about four or five pairs on the mid-rib, which are beautifully arranged, having a membrane or wing on each ſide running from pair to pair: they are terminated by an odd one, reſemble in appearance thoſe of the Lentiſcus, and are the greateſt ornaments of this ſhrub. The flowers are produced in July, at the ends of the branches. They are of a greeniſh colour; and though produced in large looſe panicles, make no great figure; neither do the ſeeds ripen with us.

Canada

Canada Lentiſcus-leaved Sumach grows to be ten feet high. The leaves have chiefly the properties of the former, but are larger, leſs delicate, and duſted or pounced over with a whitiſh matter. The flowers are produced in the ſame manner as the other: they are greeniſh, and ſucceeded by ſeeds in England.

5. The Poison-Ash. This is called the Poiſon-Tree becauſe it abounds with a milky poiſonous juice, and is diſtinguiſhed by the title Poiſon-Aſh, becauſe the leaves ſomewhat reſemble thoſe of the Aſh-tree. It is called alſo by ſome the Varniſh-tree, being the ſhrub from which the true varniſh is collected. The Poiſon-Aſh, with us, will grow to the height of about eight feet; and the branches, which are not very numerous, are covered with a ſmooth light-brown bark, tinged with red. The leaves are pinnated, and the folioles of which each is compoſed conſiſt of about three or four pairs, with an odd one. Theſe are of an oblong pointed figure, of a fine green colour, and have their edges entire. In the autumn, they die to a red or purple colour; and at that time their leaves, juſt before they fall, make a charming appearance, ſome being red, others purple, others between both; the colours of the footſtalks and mid-ribs will alſo be various, thereby in the ſame tree affording a variety of ſhades. The flowers are ſmall, and make no ſhow: they are whitiſh, and produced in May, from the wings of the branches. There will be male and female flowers on different plants; and the females are ſucceeded by ſmall roundiſh fruit, which ſeldom ripens in England.

6. The Poison-Oak is a lower ſhrub, ſeldom growing to be more than four feet high. The branches are ſmooth, and of a light-brown colour. It will coſt the gardener ſome trouble to keep theſe plants properly, as upright ſhrubs; for they will ſend out ſhoots from the bottom, which will naturally trail on the ground, and ſtrike root. But theſe muſt be conſtantly taken off; for were they to be neglected a few years, a ſingle plant would have ſpread itſelf to ſuch a diſtance as to occupy a great ſpace of ground, in a manner not becoming a well-ordered ſhrubbery or wilderneſs. The leaves of this ſhrub are trifoliate. Each foliole has a ſhort pedicle to itſelf, and the common footſtalk of the whole three is very long. They are

of a ſhining green, ſmooth, and have their edges ſometimes ſinuated, though generally entire. They are roundiſh, angular, large, and on the whole make a good ſhow. The flowers are of a whitiſh colour, are produced from the ſides of the branches, in July, and are ſucceeded by cream-coloured berries, which growing in the autumn, and even in the winter, after the leaves are fallen, in a kind of panicles, are by many taken notice of.

There are ſeveral *varieties* of this ſpecies; ſome with hairy leaves, ſome with leaves very downy, others of fine upright growth. In other reſpects their difference is inconſiderable.

7. RADICANT TOXICODENDRON. Of this ſpecies there are ſeveral *varieties*; ſome of which are of upright growth, though the ſtalks of all have, more or leſs, a tendency to lie on the ground, and ſtrike root at the joints. The leaves of all the ſorts are trifoliate, of an oval figure, ſmooth, and entire. The flowers are greeniſh, appear in June and July, and are ſucceeded by roundiſh yellow berries, which rarely ripen in England.

8. The VENETIAN SUMACH is a ſhrub of about ten feet growth, and has many valuable properties to recommend it. The bark on the older branches is of a light-brown colour, whilſt that on the young ſhoots is ſmooth, and of a purple hue. The leaves are nearly of an oval figure, and ſtand ſingly upon long footſtalks on the branches. From theſe the tree receives great beauty: they are of a delightful green, are ſmooth, and when bruiſed emit a ſtrong ſcent, which by many is thought very grateful; and on that account only makes this ſhrub deſirable. The flowers are produced at the ends of the branches, in July, in a ſingular manner: The end of the laſt year's ſhoot about that time will divide itſelf, and produce hair-like bunches of purpliſh flowers, ſo as to cover the tree; and in the autumn, though they do not perfect their ſeeds with us, theſe tufts will ſtill remain, be of a darker colour, and almoſt cover it; on account of which ſingular oddneſs this ſhrub is valued by ſome perſons. The bark is uſed by the tanners; whilſt the wood and leaves are ſought after by the dyers; the former being ſaid to dye a yellow, and the latter, together with the young branches, to dye a good black.

The PROPAGATION of the Sumach is not very difficult; for the ſecond, third, and fourth ſorts, with their varieties, produce ſuckers

ſuckers in ſuch plenty as to over-run, if not taken off, all that is near them. Theſe ſuckers when taken up will be each a good plant; nay, their very roots will grow; and though they be thrown upon a bed and dug careleſsly in, even then many young plants will ſpring from them.

The POISON-OAK and RADICANT TOXICODENDRON alſo PROPAGATE themſelves very faſt by their trailing branches, which ſtrike root as they go, and each of which will be a plant.

The VENETIAN SUMACH is eaſily encreaſed by layers; for the young ſhoots being ſlit and layered in the autumn, by the autumn following will be good plants, either for the nurſery-ground, or where they are to be planted out to ſtand.

The ELM-LEAVED SUMACH and the POISON-ASH, however, do not throw out ſuckers in this manner; and theſe are to be PROPAGATED from the ſeeds, which we receive from the places where they naturally grow. An eaſt border of garden-mould (made fine) ſhould be prepared; and in this the ſeeds ſhould be ſown as ſoon as poſſible after we receive them. The depth they will require will be about half an inch. After being ſown, and the border dreſſed up, nothing more need be done till the weeds begin to come up, which will be before the plants: as often as theſe appear, they muſt be plucked up; and when the hot parching weather comes on, the border muſt be ſhaded in the heat of the day, and, every evening, ſhould be gently ſprinkled over with water. In the beginning of June many of the plants will come up; though they frequently remain, at leaſt the greateſt part of them, until the ſecond ſpring before they make their appearance. After the plants are come up, they will want no other care than ſhading, weeding, and now and then a watering during the firſt ſummer; and if the winter ſhould be ſevere, they ſhould be matted, eſpecially the Elm-leaved ſort, which is rather the moſt tender whilſt young. After this they will require no other care than weeding until they are two-years-old ſeedlings; when, in the ſpring, they ſhould be taken up and planted in the nurſery-ground, and in two or three years more will be fit to ſet out for good. And here it muſt not be omitted to obſerve, that the other ſorts before-mentioned, which propagate themſelves ſo faſt by ſuckers, may be raiſed this way if the ſeeds can be obtained; and, indeed,

whoever has not the conveniency of procuring a few plants of each, and can have the ſeeds, muſt practiſe this method with them, by which he will ſoon procure plenty.

ROBINIA.

LINNEAN Claſs and Order, *Diadelphia Decandria:* Each flower contains ten males and one female; the males being divided into two ſets at the baſe: There are nine SPECIES; four of which will bear the open air of this country.

1. ROBINIA *Pſeudacacia:* The FALSE ACACIA; *a deciduous tree*; native of moſt parts of North America.

2. ROBINIA *Caragana:* The CARAGANA; *a deciduous ſhrub*; native of Siberia.

3. ROBINIA *Fruteſcens:* The SHRUBBY ASPALATHUS; *a deciduous ſhrub*; native of Siberia and Tartary.

4. ROBINIA *Pygmæa:* The DWARF ASPALATHUS; *a low deciduous ſhrub*; native of Siberia.

1. The FALSE ACACIA will grow to the height of thirty-five or more feet. The branches are covered with a ſmooth purpliſh-coloured bark, and armed with ſtrong ſpines, which are placed at the buds. Each bud, eſpecially of the young vigorous ſhoots, will be generally guarded by two of theſe ſpines, one of which will be on one ſide, while the other will occupy the oppoſite place. The branches are very brittle, and in ſummer, when the leaves are on, are often broke by the high winds. The leaves come out late in the ſpring; but for this they make ample amends by the beautiful foliage they will diſplay ſoon after. They are pinnated leaves, the moſt beautiful of all the compound ſorts. The folioles of which each is compoſed are of a fine green; and as there are no leſs than nine or ten pair of them placed along the mid-rib, with an odd one, the whole leaf appears very large; and all the tree being thus ornamented has a noble look, even at that time. But this ſhrub will be in its greateſt beauty when in flower; for theſe will be

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produced in long pendulous bunches, in June. They are of the papilionaceous kind; their colour is white; and when the tree blows freely, its head will be enchantingly covered with them; for they will hang all over it in a free and eaſy manner; ſome bunches appearing wholly in view, others again half hid by the waving leaves, that will ſometimes alternately hide and ſhew them; at which time alſo, when there is a current of air, the flowers themſelves receive freſh beauty from being thus agitated. But this is not all: nature has granted them a ſmell, which is very grateful; ſo that in an evening, or after a ſhower, they will perfume the circumambient air to ſome diſtance: Thus they will prove a feaſt to all thoſe who will attend at thoſe times, as they will never fail of regaling one of the ſenſes by their grateful and profuſe fragrance. Theſe flowers, it is to be lamented, are of ſhort duration; and are ſucceeded by pods, which in ſome ſeaſons will perfect their ſeeds with us.

The principal *varieties* of this ſpecies are, the *Scentleſs*, *Prickly-podded*, *Roſe-coloured*, *Scarlet*, *Smooth-podded*, &c. *Acacia*.

The *Falſe Acacia with Roſe-coloured flowers* appears to have the moſt material difference. Is is of lower growth; the young branches, and the footſtalks and very cups of the flowers, are armed with prickly hairs or ſpines. The flowers are produced rather earlier than thoſe of the other ſorts; they are large, and of a moſt beautiful roſe-colour. They have no odour like the others; but make a moſt noble ſhow when in blow. They are ſucceeded by flat pods; and the variety is moſt beautifully encreaſed by this ſort. The difference of the others is chiefly pointed out by the names which are in common uſed to expreſs them.

2. CARAGANA riſes, with a ſhrubby ſtalk, to the height of about eight or ten feet, ſending forth ſeveral branches, which are covered with a greeniſh-yellow bark. The leaves are abruptly pinnated; the folioles are oval, ſpear-ſhaped, pointed, and conſiſt of about five or ſix pair arranged along the mid-rib. The flowers come out from the ſides of the branches, on ſingle footſtalks: they are ſmall, of a yellowiſh colour, appear in May, and are ſucceeded by ſmooth compreſſed pods containing the ſeeds, which will be ripe in September.

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3. The SHRUBBY ASPALATHUS is a beautiful flowering ſhrub. Its growth will be ſeven or eight feet; and the branches naturally grow upright. The bark is ſmooth, and of a yellowiſh colour; but that of the youngeſt twigs partakes more of a purpliſh colour on one ſide, and is on the other often of a light green with a yellow tinge. The leaves are each compoſed of about four folioles, which are oval and pointed. The flowers are produced in May, from the joints of the branches, upon ſingle footſtalks: they are of a fine yellow colour, and of the butterfly make; and ſo adorn the tree when in blow, as to render it inferior to few of the flowering-ſhrubs. Theſe flowers are ſucceeded by pods, containing ripe ſeeds, in the autumn.

4. DWARF ASPALATHUS is a pretty little ſhrub, ſending forth ſeveral ſlender branches, which are covered with a golden bark. The leaves are quaternate, wedge-ſhaped, obtuſe, have no footſtalks, and, unleſs very ſevere weather happens, continue on the plant the greateſt part of the winter. The flowers come out from the ſides of the branches, on ſingle footſtalks: they are ſmall, of a yellow colour, appear in May, and are ſucceeded by ripe ſeeds in the autumn.

The PROPAGATION of all theſe ſorts is very eaſy, and may be done, 1. By ſeeds. If theſe are ſown the beginning of March, half an inch deep, in a bed of any common garden-mould, plants will come up in May, which will want no other care than weeding all the firſt ſummer, and no protection of any kind in the winter; for they are all hardy enough. In the following ſpring they ſhould be planted out in the nurſery-ground, a foot aſunder, and two feet diſtant in the rows; and here (the three firſt ſorts) they ſhould not ſtand longer than two or three years before they are ſet out to ſtand, as they will grow exceeding faſt, and by that time will be perhaps ſix feet in height. The fourth ſort being of lower growth, the plants may be pricked in beds, a foot aſunder, which will be room enough for them to grow in, before they be finally ſet out. It may not be amiſs to obſerve alſo, that the ſeeds of this ſort often remain until the ſecond ſpring before they come up; ſo that when they do not appear the firſt after ſowing, the beds muſt be kept weeded all ſummer; and, if the ſeeds were good, there will be no fear of a crop the following ſpring. 2. Theſe ſorts are eaſily propagated by cuttings, which if planted in October, in a moiſtiſh

moiſtiſh ſhady border, many of them will grow. Here they ſhould ſtand two years, when they will be proper plants to be planted out; though we muſt obſerve, that the fourth ſort may remain longer before they are ſet out; and as the cuttings of that ſort have often failed growing, the moſt certain method, and what is generally practiſed when there are no ſeeds, is to encreaſe it by layers. 3. The firſt ſorts will encreaſe themſelves by ſuckers, in ſufficient plenty; for the old plants will ſpawn at a conſiderable diſtance, and afford ſuch a quantity of free-ſhooting ſuckers, that they will be all good plants, fit to be ſet out for continuance.

ROSA.

LINNEAN Claſs and Order, *Icoſandria Polygynia:* Each flower contains about twenty males and many females: There are eighteen SPECIES; thirteen of which we here enumerate:

1. ROSA *Canina:* The DOG-ROSE, or HEP TREE; *a deciduous ſhrub*; common in our hedges, and moſt parts of Europe.

2. ROSA *Pimpinellifolia:* The BURNET-ROSE, or CAT-WHIN; *a deciduous ſhrub*; natural to England and moſt parts of Europe.

3. ROSA *Spinoſiſſima:* The SCOTCH ROSE; *a deciduous ſhrub*; native of Scotland, England, and moſt parts of Europe.

4. ROSA *Alpina:* The ALPINE ROSE; *a deciduous ſhrub*; native of the Alps of Switzerland.

5. ROSA *Eglanteria:* The EGLANTINE, or the SWEET-BRIAR; *a deciduous ſhrub*; native of England and Switzerland.

6. ROSA *Cinnamomia:* The CINNAMON ROSE; *a deciduous ſhrub*; grows in the ſouthern parts of Europe.

7. ROSA *Carolina:* CAROLINA ROSE; *a deciduous ſhrub*; native of North America.

8. ROSA *Villoſa:* The APPLE ROSE; *a deciduous ſhrub*; native of moſt parts of Europe.

9. Rosa *Centifolia*: The HUNDRED-LEAVED Rose; *a deciduous ſhrub*: it is not known where this Roſe grows naturally.

10. Rosa *Gallica*: The GALLICAN Rose; *a deciduous tree*; grows naturally in moſt parts of Europe.

11. Rosa *Sempervirens*: The EVER-GREEN Rose, or MUSK Rose; *an ever-green ſhrub*; native of Germany.

12. Rosa *Pendulina*: The LONG-FRUITED Rose; *a deciduous ſhrub*; native of Europe.

13. Rosa *Alba*: The WHITE Rose; *a deciduous ſhrub*; native of Europe.

1. The DOG-ROSE grows all over England, and is ſeldom cultivated in gardens. It is, nevertheleſs, poſſeſſed of many beauties, if obſerved with due attention; and, if it was not ſo very common, would deſerve a place in the choiceſt Collection.

The *varieties* of this ſpecies are, the Hep-tree with Red Flowers, the White-flowered Hep-tree.

2. BURNET-ROSE is a ſmall-growing tree, ſeldom riſing higher than one yard. The flowers are ſingle, and make no great figure; but what renders this Roſe valuable is, that the leaves are pinnated in ſuch a manner as to reſemble thoſe of the burnet, which occaſions its being ſo called, and by which it conſtitutes an agreeable variety among the leafy tribe.

The *varieties* of it are, Red-flowered Burnet-leaved Roſe, Black Burnet-leaved Roſe, White Burnet-leaved Roſe.

3. SCOTCH ROSE. The *varieties* of this ſpecies are all of low growth, and known by the reſpective names of,

Dwarf Scotch with a White Flower,
Dwarf Scotch with a Red Flower,
Dwarf Scotch with a Striped Flower,
Dwarf Scotch with a Marbled Flower.

They are all beautiful flowering ſhrubs. The White flowering ſort will grow to the higheſt ſize, as it will commonly grow to be three feet, whilſt the others ſeldom riſe to above two feet in height. The branches are upright and numerous, and ſmartly ſet off by their beautiful pinnated leaves; for the leaves of theſe ſorts excel thoſe of all other Roſes in delicacy, the folioles being ſmall, of a good green colour, and arranged along the mid-

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rib in the manner of thoſe of the burnet. The flowers will be produced from the branches in vaſt profuſion; and though they are all ſingle, they make a ſhow inferior to few ſhrubs. In winter they will be full of heps that have the appearance of black-berries; and if the weather be mild, the young buds will ſwell early, and appear like ſo many little red eyes all over the ſhrub, which is a promiſe of the reviving ſeaſon. The young branches of all theſe ſorts are exceeding full of prickles.

4. ALPINE ROSE. This is uſually called the Roſe without Thorns, the branches being perfectly free from all kinds of prickles. They are exceedingly ſmooth, of a reddiſh colour, and look well in winter. The flowers are ſingle, and of a deep-red colour. They come out in May, before any of the other ſorts; and the plant is valued by ſome people on that account. They are ſucceeded by long narrow heps, which look ſingular, and, together with the early appearance of their flowers, and their beautiful twigs, that are wholly free from the armature of the other ſorts, cauſe this ſpecies to be much admired.

5. EGLANTINE, or Sweet-Briar. The *varieties* of this ſpecies are, Common Sweet-Briar, Semi-double Sweet-Briar, Double Red Sweet-Briar, Maiden Bluſh Double Sweet-Briar, Sweet-Briar with Yellow Flowers.

The *Common Sweet-Briar* is well known all over England. The branches, which are of a reddiſh caſt, are all over cloſely armed with prickles; the flowers are ſingle, and of a pale-red colour, like thoſe of the Common Wild-Briar. The leaves conſtitute the value of this plant; for they are poſſeſſed of ſo grateful an odour, as to claim admittance for this ſort into the firſt claſs of aromatic plants: the odoriferous particles they emit are ſweet and inoffenſive; and they beſtow them in ſuch profuſion, eſpecially in evenings or after a ſhower, as to perfume the circumambient air to a conſiderable diſtance. For this reaſon, plenty of Sweet-Briars ſhould be planted near much-frequented walks; or if the borders of theſe are deſigned for more elegant flowering ſhrubs or plants, they may be ſtationed at a diſtance, out of view, and then they will ſecretly liberally beſtow their ſweets, to the refreſhment of all. For noſegays, alſo, there is nothing more proper than ſprigs of the Sweet-Briar, when diveſted of its prickles; for they will not only have a good look-

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as a fine green in the center of a poſy, but will improve its odour, let the other flowers of which it is compoſed be what they will.

Semi-double Sweet-Briar differs in no reſpect from the Common, only that the flowers conſiſt of a double ſeries of petals that ſurround the ſtamina. The leaves are poſſeſſed of the ſame fragrance; but this ſort is thought more valuable on account of the flowers, which, being poſſeſſed of more petals, make a better figure.

Double Sweet-Briar. The number of petals are ſo multiplied in this ſort as to form a full flower; and it ſeems to differ in no other reſpect from the other Sweet-Briars. The flowers are red, and ſo large and double as to be equal in beauty to many of the other ſorts of roſes. As by the fragrance of their leaves they afford us a continual treat during the ſummer months, as well as by their fair flowers at the time of blowing, all who pretend to make a Collection are careful of procuring plenty of this ſort.

Double Bluſh Sweet-Briar is a moſt valuable, and at preſent a very ſcarce, plant. It ſeems to have a tendency not to grow ſo high as the other ſorts of Sweet-Briars. The branches are green, and cloſely armed with ſtrong prickles. The flowers are of a pale-red or bluſh colour, and every whit as double as the Cabbage-Provence-Roſe: it cabbages in the ſame manner, and is very fragrant. No one need be told the value of a Roſe which has every perfection and charm, to the higheſt degree, both in the leaves and flowers, to recommend it.

Sweet-Briar with Yellow Flowers. The flowers of this ſort are ſingle; the petals are of a bright-yellow colour; but it differs in no other reſpect from the Common Sweet-Briar.

6. CINNAMON-ROSE. The *varieties* of this ſpecies are, Single Cinnamon-Roſe, Double Cinnamon-Roſe.

The *Single Cinnamon-Roſe* is a much ſtronger ſhooter than the Double ſort, which is better known. It will grow to be ten or twelve feet in height. The young branches are of a reddiſh colour. The flowers are ſingle, and have the ſame hue as thoſe of the Double. It is rather a ſcarce plant at preſent; on which account chiefly it is thought valuable.

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The *Double Cinnamon-Roſe* will grow to about ſix or ſeven feet high, and the branches are many and ſlender. The prickles are pretty numerous, and the young ſhoots in winter are of a red colour, with a purpliſh tinge. This ſort, which uſhers in the flowery tribe of Double Roſes, will be in blow ſometimes pretty early in May. The flowers are ſmall, but very double: they are of a purpliſh red, very ſweet, and have a little of the ſmell of cinnamon, which occaſions this Roſe to be ſo called; and on that account only, not to mention their early appearance, this ſort is deſirable.

7. CAROLINA ROSE. The *varieties* of this ſpecies are uſually called, Wild Virginian Roſe, Pennſylvania Roſe, Pale-red American Roſe.

The *Wild Virginian Roſe* will grow to be nine or ten feet high. The branches are covered with a ſmooth red bark, and guarded by a very few prickles. It produces its flowers in Auguſt, when moſt of the other ſorts are out of blow, and is by many valued for that reaſon. The flowers are ſingle, of a red colour, are produced in cluſters, and will continue blowing from the beginning of Auguſt until October. Neither is this the ſole beauty this ſort affords us; for the flowers will be ſucceeded by heps, which in winter appear like ſo many red berries all over the ſhrub. Theſe heps ſerve as food for birds, and are therefore much frequented by thruſhes and others of the whiſtling tribe, who will be ready to uſher in, by their ſweet warbles, the earlieſt dawn of ſpring. This tree grows wild in Virginia, and many parts of North-America, from whence we receive the ſeeds, and propagate it not only on ſome of the above accounts, but becauſe it is naturally an upright well-growing tree, and makes a good figure in winter by its red and beautiful ſhoots.

The *Pennſylvania Roſe* ſeems to differ in nothing from the former, except its ſize, it ſeeming to be a plant of lower growth; and the Pale-red ſort occaſions variety only from the lobes of the flowers.

8. APPLE-ROSE. This ſpecies is a curioſity, not ſo much from the ſingularity of the ſhoots, leaves, or flowers, as fruit. The ſhoots, indeed, will be ſtrong and bold, and in winter diſtinguiſh the tree from others by a degree of eminence. They

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are then covered with a ſmooth reddiſh bark; and the prickles which guard them are thinly placed, though thoſe are very ſtrong and ſharp. Many think this tree has a good look in winter, and value it much on that account. As to the leaves, they are nearly the ſame as the other ſorts of Roſes; but are large, and very hairy and downy underneath. The flowers are ſingle, of a red colour, and are ſucceeded by heps as large as little apples. To their account the value chiefly of this ſort is to be placed; for being thus large, they occaſion a ſingular look; and this is heightened by being all over beſet with ſoft prickles. For uſe as well as beauty this ſort is propagated by ſome; for theſe heps or fruit, when preſerved, make a ſweetmeat greatly eſteemed.

9. HUNDRED-LEAVED ROSE. This is a very extenſive ſpecies, and includes all *varieties* whoſe ſtalks are hiſpid, prickly, and have leaves growing on footſtalks which are not armed with prickles; and whoſe flowers have oval, hiſpid germina and footſtalks. Of this kind are, the Deep Red Provence, the Pale-red Provence, the Large Cabbage Provence, the Dutch Provence, the Childing Provence, the Moſs Provence, the Great Royal Roſe, the Bluſh hundred-leaved Roſe, the Dutch hundred-leaved-Roſe.

The *Provence-Roſes* are all well known. The Red and the Pale Provence ſorts differ, in that one is a deep, the other a pale red; the petals are larger and looſer than the Cabbage-Provence, and make varieties. The Cabbage-Provence is the beſt of all the ſorts; and, if its commonneſs does not detract from its value, is inferior to no Roſe. The Dutch Provence has a tendency to cabbage, and is of a deeper red than the Common Provence. The Childing is of lower growth than any of the other ſorts, ſeldom growing to be more than four feet; it is naturally of upright growth, and the bark is brown and prickly. The flowers at firſt are globular, though they will afterwards open at top, and diſplay their petals folded a little like thoſe of the Belgic. All theſe are beautiful roſes, and greatly ornamental either to ſhrubberies or gardens.

The *Moſs-Provence* is a ſort that has been ſought after of late more than any of the others. Its branches are of a duſky brown, and they are all over cloſely beſet with prickles. The flowers

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are like thoſe of the Common Provence; though they have a ſtronger footſtalk, and grow more upright. About the calyx of the flower grows a kind of moſs, which is of a yelloviſh-green colour, and by which it will be wholly ſurrounded. This Roſe has not been many years known in England, and from whence it was firſt brought is uncertain. It ſeems to owe its excellence to the moſſy ſubſtance growing about the footſtalk and calyx of the flower; but were this as common as the other ſorts of Provence-Roſes, that would be looked upon as an imperfection; for though this flower naturally is poſſeſſed of the ſame agreeable fragrance as the other Provence-Roſes, yet this moſſy ſubſtance has a ſtrong diſagreeable ſcent, and is poſſeſſed of a clammy matter.

Great Royal Roſe is one of the largeſt, though not the compacteſt, Roſes we have. It will grow to be eight or nine feet high. The branches are brown, and have a number of prickles. The flowers are red, and poſſeſſed of a very grateful odour, and the petals very large. Upon the whole, this is a ſort very much coveted, and is one of the beſt Roſes in England.

The *Bluſh and Dutch Hundred-leaved Roſes* differ in no reſpect, only that the flowers of one are of a paler red than thoſe of the other; and both theſe ſorts may contend for the prize of beauty with any of the Roſe tribe. They ſeldom grow more than four feet high. The branches are green and upright, and have very few ſpines. The flowers are large, and exceedingly double: Each is compoſed of numerous ſhort petals, which are arranged in ſo regular a manner as to form a complete flower; and it is on account of the extraordinary number of theſe petals that this Roſe takes the name of Hundred-leaved Roſe. We ſeem to do injuſtice to this Roſe, when we do not pronounce it the faireſt of the whole liſt; but when we reflect on the ſurpaſſing delicacy and beauty of many other ſorts, we are obliged to give the preference to none.

10. GALLICAN ROSE. Under this title are arranged all thoſe Roſes whoſe branches and footſtalks of the leaves are hiſpid and prickly, and whoſe flowers have oval, hiſpid germina, and grow on hiſpid footſtalks. Of this kind are,

The Semi-double Red Roſe,

The Old Double Red Roſe,

The *Roſa Mundi*, or Variegated Roſe,

The York and Lancaſter Roſe,
The Semi-double Velvet Roſe,
The Full-double Velvet Roſe,
The Bluſh Belgic Roſe,
The Red Belgic,
The Bluſh Monthly,
The Red Monthly,
The White Monthly,
The Striped Monthly,
The Red Damaſk,
The White Damaſk,
The Bluſh Damaſk,
The Doubled Virgin,
The Marbled,
The Great Spaniſh,
The Yellow Auſtrian Roſe,
The Copper-coloured Roſe,
The Double Yellow,
The Franckfort Roſe.

11. The MUSK-ROSE. The EVER-GREEN ſort is naturally a climbing plant, but if planted ſingly will form itſelf into a buſh of five or ſix feet high: its flowers are ſingle, white, and fragrant.

Beſides the Evergreen, there are two deciduous *varieties* of this ſpecies, called, the Single Muſk-Roſe, and the Double or Semi-double Muſk-Roſe.

Single Muſk, or White Cluſter, is a ſcarce and valuable Roſe. The young ſhoots are covered with a ſmooth green bark, and are not poſſeſſed of many ſpines; thoſe few they have are very ſtrong, and of a dark-brown colour. This ſort produces its flowers in Auguſt, in very large cluſters; they are of a pure white; and the tree will continue to exhibit its ſucceſſion of flowers until the froſt puts a period to the blowing. The ends of the branches are frequently killed by the froſts in the winter; ſo that early in the ſpring they ſhould be gone over with the knife, and all dead wood taken off, which would have an ill look, amongſt the healthy leaves and young ſhoots.

The *Semi-double and Double Muſk*, or White Cluſter-Roſes, are

are late-flowering ſorts. They will begin blowing in Auguſt, and continue ſo till the froſt puts an end to the glories of that ſeaſon. The ſtalks are covered with a ſmooth green bark, which will be armed with a few very ſtrong, brown, crooked ſpines. The flowers are of a pure white, and produced in large cluſters, at the ends of the branches. Theſe at preſent are not common, and are much coveted by the curious.

12. *Pendulous-fruited Roſe* grows only to about five or ſix feet high, ſending forth ſeveral hiſpid branches from the bottom to the top. The leaves are compoſed of many oval folioles, arranged along the mid-rib, and their footſtalks have few or no prickles. The flowers have oval, ſmooth germina, grow on hiſpid footſtalks, and are ſucceeded by long pendulent fruit, full of ſeeds.

13. The WHITE ROSE. The characteriſtics of this ſpecies are, the ſtalks and footſtalks of the leaves are prickly, the flowers have oval ſmooth germina, and grow on hiſpid footſtalks. Of this kind are,

The Double White Roſe,
The Semi-double White,
The Dwarf White,
The Maiden's Bluſh Roſe.

All the ſorts of Roſes are to be PROPAGATED, 1. By layers. For this purpoſe, in order to obtain plenty of them, a ſufficient number ſhould be planted for ſtools; and after theſe have been planted a year or two, they ſhould be headed near the ground, which will make them throw out plenty of young ſhoots. In the autumn, theſe ſhould be layered in the ground. The beſt way to do it is by a ſlit at the joint, though a gentle twiſt will often do as well, particularly for all the ſorts of Monthly Roſes, Damaſk-Roſes, and Sweet-Briar, which will readily take if the bark be juſt broke, and will often ſend forth roots at every joint by the autumn following. Moſt of the other ſorts do not ſtrike root ſo freely; ſo that amongſt them, by the autumn, after layering, few will be found ſtrong enough, and with root ſufficient, to be planted out to continue. However, in general, they will have roots, and oftentimes very good ones. In the autumn every layer muſt be taken up, the ſtools neated up, and a freſh operation performed on the young ſhoots that may have ſhot the preceding ſummer. The layers that have

been taken up ſhould be planted in the nurſery, at no very great diſtance, and the ſorts ſhould be kept ſeparate and booked, number-ſticks being made to the ſeparate ſorts, that they may be diſtinctly known. The Moſs-Provence and the Muſk-Roſes do not ſtrike root ſo freely by layers; neither does the Apple-bearing Roſe; ſo that for all theſe ſorts you muſt often wait two years before you take off the layers from the ſtools, and ſometimes longer; which is the reaſon of theſe plants being rather ſcarce, they not being to be expeditiouſly propagated in plenty. 2. Theſe trees may be propagated by ſuckers, which moſt of the ſorts have a natural tendency to throw out; and theſe may be taken up, and the ſtrongeſt and beſt rooted ſet out to ſtand, whilſt the weakeſt may be planted in the nurſery for a year or two, to gain ſtrength. But here we muſt obſerve, that the Moſs-Provence, Muſk and Apple-bearing Roſes ſeldom throw out ſuckers; ſo that we muſt not wait for them from theſe ſorts, but muſt get forward with our layering. 3. The Common Sweet-Briar is to be propagated by ſeeds. Theſe ſhould be ſown as ſoon as they are ripe, in a bed of common garden-mould made fine. They generally remain until the ſecond ſpring before they come up, and afterwards will require no other care than weeding until the ſpring following, when they may be taken up, and planted in the nurſery at ſmall diſtances; and in two or three years time they will be good plants for the ſhrubbery, wilderneſs, or hedges. And indeed as great quantities of theſe odoriferous plants are often wanted, this is the eaſieſt and moſt expeditious way of raiſing them in plenty.

By ſeeds alſo the Burnet-leaved, Apple-bearing, and Red or White Scotch Roſes may be raiſed; which are doubtleſs diſtinct ſpecies, and will preſerve the ſorts by ſeeds.

RUBUS.

LINNEAN Claſs and Order, *Icoſandria Polygynia*: Each flower contains about twenty males and many females: There

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are eighteen SPECIES; four of which are applicable to our purpoſe:

1. RUBUS *Fruticoſus:* The COMMON BRAMBLE; *a well-known trailing plant*; common in moſt countries in Europe.

2. RUBUS *Hiſpidus:* The CANADA BRAMBLE; *a trailing plant*; native of Canada.

3. RUBUS *Cæſius:* The DEWBERRY or CÆSIUS; *a trailer*; native of moiſt places in moſt parts of England and Europe in general.

4. RUBUS *Odoratus:* The VIRGINIA RASPBERRY; *a deciduous ſhrub*; native of Virginia and Canada.

1. The COMMON BRAMBLE admits of the following *varieties:*

The Double-bloſſomed Bramble, the Bramble without Thorns, the Bramble with White Fruit, the Cut-leaved Bramble, the Variegated Bramble.

The *Double-bloſſomed Bramble* differs in no reſpect from the Common Bramble, only that the flowers are very double. The ſtalks, like that, are cloſely armed on all ſides by ſtrong crooked prickles, that turn backwards. They are, like that, channelled; and in the winter have ſome of a reddiſh-purple colour, others green, ſome red on one ſide and green on the other. The leaves alſo are ſhaped like the hands, and are compoſed ſometimes of three, ſometimes of five lobes. They have their upper ſurface ſmooth, and of a fine green colour, whilſt their under is of a whitiſh colour. The footſtalks that ſupport them are prickly, and a ſeries of prickles are arranged all along the midrib of each lobe. They continue on the plants moſt part of the winter, at the beginning of which they are green; but after Chriſtmas they turn brown, and ſeldom look well after. This is the deſcription of the Common Bramble, and of the Double ſort alſo, which differs in no other reſpect than in the doubleneſs of the flower. They are produced in the ſame manner at the ends of the ſhoots, each of which is exceeding double. The petals are whiter; and as a profuſion of theſe ornament the ends of moſt of the ſhoots in the ſame manner as the flowers of the Common ſort, they make a ſhow, and are beautiful beyond expreſſion. It may be

kept down and confined, to have the appearance of a flowering-ſhrub. The flowers are ſucceeded by no fruit. It will thrive and flower exceedingly well under the drip of trees; ſo that for old plantations, this is a uſeful plant for the under ſhrubs, as it will flouriſh where hardly any thing elſe will grow.

Bramble without Thorns, is not near ſo ſtrong a ſhooter as the Common Bramble, the ſhoots being more trailing and ſlender, perfectly ſmooth, and of a blueiſh colour; and on this account it is that this plant is held as a curioſity. A curioſity, indeed, it is; and many have expreſſed their agreeable ſurprize to find a Bramble that they could familiarly handle without hurt. The leaves of this ſort have a blueiſh tinge, and the footſtalks and mid-rib are entirely free from prickles. It flowers in the ſame manner as the Common Bramble, though the flowers are rather ſmaller; and are ſucceeded by black berries, on which the inſects do not ſeem to ſwarm in ſuch plenty as they do on the other ſort.

Bramble with White Fruit is deemed curious only on that account, and has (ſays HANBURY) often given occaſion to a hearty laugh, by a bull which has been made by many on their firſt ſeeing this fruit, who have cried out with ſurprize, "Here is a Bramble that bears white black-berries." It is, therefore, the colour of the fruit that makes this ſort coveted, though the leaves are of a lighter green than any of the other ſorts, and on that account make a variety among the leafy tribe.

Bramble with Cut Leaves differs from the Common only in that the leaves are cut in an elegant and beautiful manner. It affords a variety in no other reſpect; and thoſe that are fond of ſuch, are ſure of meeting one in this, whoſe leaves being thin and elegantly cut, make the plant have a different look from the other ſorts.

Variegated Bramble differs in no reſpect from the Common Bramble, only it is a weaker plant. The leaves are ſtriped; and it is valuable only to thoſe who are fond of variegated ſhrubs.

2. AMERICAN BRAMBLE. The ſhoots of this ſpecies are long, ligneous, procumbent, rough, and hairy. The leaves are trifoliate, naked, cut at the edges, ſerrated, and grow on hiſpid

hiſpid footſtalks. The footſtalks of the flowers alſo are hiſpid. They come out from the ends and ſides of the branches, in July and Auguſt; and are ſucceeded by round reddiſh fruit in the autumn.

3. Cæsius, Small Bramble, or Dewberry-bush. The ſtalks of this ſort are weak, ſlender, prickly, and trailing. The leaves are trifoliate, large, and uſually of a duſky-green colour. The flowers are whitiſh, come out from the ends and ſides of the branches, in July and Auguſt, and are ſucceeded by large blue fruit, which will be ripe in the autumn, and of which an excellent wine is made.

All theſe ſorts may be propagated by cuttings. They ſhould be planted in the autumn, in a ſhady border, and by the autumn following they will be fit to remove. But as a crop from cuttings often fails, the beſt way will be to throw ſome mould over the ſhoots, as they ſtrike in the ſpring; and when they have ſhot two or three feet farther, cover them afreſh, and ſo on all ſummer. By this means, thoſe parts that were firſt covered will have either ſtruck root, or they, together with all the others, will be preparing to ſtrike root: ſo that being cut into lengths, and the parts before covered planted again in earth, and about three or four inches of the uncovered part being above ground, almoſt every one of the cuttings of this nature being thus prepared will grow, and thus plenty of plants may be ſoon obtained.

4. The Virginia Raspberry. All the ſorts of Raſpberries are ſpecies of *Rubus*, and are propagated for their fruit; but this ſort is cultivated ſolely to mix with our flowering ſhrubs. It riſes from the ground like the Common Raſpberries, though it will naturally grow higher; but its growth is either higher or lower in proportion to the nature of the land or ſituation, as it will grow higher by two or three feet in a deep, rich, moiſt ſoil, than it will in a ſoil of the oppoſite nature. The ſtalks are of a brown colour, and wholly without prickles; and the ſtrongeſt will divide into ſeveral ſmaller branches. The leaves are exceedingly large for a ſhrub of that height; from whence the plant derives no ſmall beauty. They are broader than they are long, and of a fine green on both ſides, the upper being of a dark, the under of a lighter colour. Each is divided into an

uncertain number of lobes, which are ſerrated, and end in acute points. Theſe leaves grow alternately, on footſtalks that are of a proportionable length and ſtrength to the ſize of the leaves, they being often eight or nine inches broad, and ſeven or eight in length. The flowers are produced in July, in plenty, at the end of the ſtalks; and the ſucceſſion will be continued for often more than two months; though they are always the moſt beautiful on their firſt appearance. They are of a purpliſh red, a colour which is very deſirable at that time, when moſt of the other ſhrubs that are in blow will have yellow flowers. Each ſtands on a long footſtalk; and many of them being collected into a kind of looſe bunch, they make a tolerable figure. They are ſeldom ſucceeded by any fruit with us; and when this happens, it is of no flavour, and on that account of no value.

It is eaſily PROPAGATED from the ſuckers, which it ſends forth in ſuch abundance, that from a few plants, in a few years, almoſt any deſired quantity may be obtained: nay, ſo faſt do they creep and ſend forth ſtalks on all ſides, that, unleſs they are conſtantly taken up as they grow, they will ſoon overſpread and choak all ſmaller plants that grow near them. The beſt time for taking off the ſuckers is the autumn; though they will grow very well if planted either in the winter or ſpring.

RUSCUS.

LINNEAN Claſs and Order, *Diœcia Syngeneſia:* Male flowers containing three ſtamens, and female flowers containing one piſtil; upon diſtinct plants: There are four SPECIES:

1. RUSCUS *Aculeatus:* The COMMON BUTCHER'S BROOM; *an evergreen ſhrub*; native of England, Italy and France.

2. RUSCUS *Hypophyllum:* The BROAD-LEAVED BUTCHER'S BROOM; *an evergreen ſhrub*; native of Italy.

3. RUSCUS

3. Ruscus *Hypogloſſum:* The Hypoglossum; *an evergreen ſhrub*; native of Italy and Hungary.

4. Ruscus *Racemoſus:* The Alexandrian Laurel; *an evergreen ſhrub*; native place not known.

1. The Common Butcher's Broom will riſe with tough, ligneous, ſtreaked, green, ſpreading ſtalks, to about a yard in height. Theſe proceed from a large, white, tender, creeping root, which will, if the plant has remained long, be found very deep in the ground. The leaves are of an oblong figure, of a dark duſky-green colour, and grow alternately on the ſtalks. Their edges are entire; they are of a thick ſtiff conſiſtence; and their points are prickly, and as ſharp as needles. The flowers grow on the middle of the upper ſurface of the leaves, and will be ripe in June. They are ſmall and greeniſh; and the females are ſucceeded by large beautiful red berries, of a ſweetiſh taſte. This plant is of great uſe to the butchers, who gather it to make different beſoms, both for ſweeping of their ſhops and cleaning of their blocks; from whence it has the appellation of Butcher's Broom. The young tender ſhoots of this ſhrub, in the ſpring, may be eaten like hop-tops or aſparagus, and ſome people are very fond of them. The ſeeds and roots are much uſed in medicine.

2. The Broad-leaved Butcher's Broom has large white roots, with long thick fibres, and from theſe riſe pliable ſtalks, which will grow to be near a yard high. Theſe ſtalks are of a very fine green colour, and are very tough and numerous. They produce their leaves in an alternate manner, are of a very fine ſhining-green colour, and of a thick conſiſtence. They are longer and broader than the other ſort; their figure is oval, and they end in acute points. The flowers of this ſort grow on the under ſurface of the leaves, near the middle. Theſe are ſmall, and of a greeniſh white. They are produced in July; and the ſeeds that ſucceed them are ſmall and red, and will be ripe in winter.

3. The Hypoglossum is the loweſt of all the ſorts, as the ſtalks ſeldom get to above a foot high, and has very few pretenſions, indeed, to be called a ſhrub; nevertheleſs, it may juſtly claim a place at the edge at leaſt of all evergreen ſhrubberies. The roots are nearly of the ſame nature with the other ſorts, and the

ſtalks

ſtalks are numerous and pithy. They are of a dull-green colour, and ſtriated; and they produce their leaves in an irregular manner, being ſometimes alternate, whilſt others again may be ſeen ſtanding oppoſite by pairs. Theſe leaves are of a lanceolated figure, and are of the ſame dull-green colour with thoſe of the ſtalks. They are from three to four inches long, and about one broad. They grow without any footſtalks, being narrow at both ends, and their edges naturally turn towards the center of the upper ſurface. They are free from ſerratures; and from the ſtalk or baſe of the leaves run ſeveral veins the whole length, which gradually diverge from the middle, but approach again in the ſame manner until they all end in the point of the leaf. Each of theſe leaves produces another ſmall leaf of the ſame ſhape, from the middle of its upper ſurface; and from the bottom of theſe ſmall leaves are produced the flowers. Theſe will be ripe in July, are ſmall and yellowiſh; and the fruit that ſucceeds them is large and red, and will be ripe in winter.

4. The ALEXANDRIAN LAUREL has the ſame kind of white ſcaly roots with long thick fibres as the others, and the branches are very numerous and pliable. They are ſmooth and round, of a ſhining-green colour, and produce others ſmaller, alternately from the bottom to the top. They will grow to be four or five feet high, and their pliable branches are nevertheleſs brittle near the bottom. The leaves grow chiefly on the ſmaller ſide-ſhoots, and on theſe they are placed alternately. They ſit cloſe to the branches, are ſmooth, of a delightful ſhining-green colour, and have ſeveral ſmall veins running the whole length, diverging from the middle, but approaching again to end at the point. They are from two to three inches long, and about one broad, are of an oblong lanceolated figure, and end in very acute points. The flowers are produced in long bunches, at the ends of the branches. Each of them is ſmall, and of a yellowiſh colour; and they are ſucceeded by large red berries, which will be ripe in winter.

There is a *variety* of this ſort with red flowers. "This ſpecies of *Ruſcus*," ſays HANBURY, "is ſuppoſed to be the Laurel which compoſed the wreaths worn by the ancient victors and poets; and indeed with good reaſon, not only on account of its pliableneſs, by which it might be eaſily wrought for ſuch pur-

purpoſes, but the wreaths on the ancient buſts, &c. ſeem to figure to us the leaves and ſlender branches of the plant we are treating of."

There is another ſort of *Ruſcus*, which has oval acute-pointed leaves, growing by threes round the ſtalks, and which produce the flowers and fruit from the mid-rib on the under ſurface; alſo another ſort, with oval acute-pointed leaves which produces the flowers from the mid rib, on the upper ſurface. But as theſe are only varieties of the above ſorts, have the ſame kind of roots, produce the ſame kind of ſlender pliable branches, and have their flowers ſucceeded by nearly the like kind of berries, nothing more need be ſaid of them.

All theſe ſorts may be eaſily PROPAGATED. 1. After having obtained a plant or two of each, their roots will encreaſe ſo faſt, and will proportionably ſend forth ſuch a quantity of ſtalks, that each of them will ſoon form itſelf into a little thicket: theſe, then, are to be taken up and divided; and from one original root or off-ſet many will be ſoon produced. The beſt time for this work is early in the autumn; though they will grow very well if divided and removed in the ſpring, or any time in the winter. 2. Theſe plants are alſo to be encreaſed by ſeeds. This, however, is a ſlow way; but muſt, nevertheleſs, be practiſed, when the plants cannot be obtained. The beds for their reception muſt be made fine, and cleared of the roots of all weeds. They will require no other compoſt than that of good common garden-mould. They ſhould be ſown an inch and a half or two inches deep, and the beds ſhould be neated up to lie undiſturbed, for they will not come up before the ſecond, and ſometimes the main crop the third, ſpring after ſowing. All the ſummer they ſhould be kept clean of weeds; and if the beds wear away ſo as to endanger the ſeeds being laid bare, a little fine mould ſhould be riddled over them, to ſupply what may be loſt by wear in weeding, ſettling, &c. After they are come up, they will require no other care than weeding, for they are very hardy; and when they come too thick in the ſpring after the froſts are over, the ſtrongeſt ſhould be drawn out and planted in beds ſix inches aſunder. This will make room for the others to flouriſh; and though mention is made of removing theſe plants after the froſts are over, it is not becauſe they are tender and ſubject to be deſtroyed by it, but if they are removed in the autumn, or early in the winter, being then

then ſmall, the froſts generally throw them out of the ground, to the great danger, if not entire loſs, of the whole ſtock of the new-removed ſeedlings. This, however, is conſidered by few Gardeners who have not paid dear for their experience, and is what is chiefly recommended by our modern authors, to tranſplant ſeedlings of moſt ſorts from the beds in October; which indeed would be an excellent month, were no froſts to enſue. But good thought and experience, by fatal practice, have taught the Gardener now, to defer the removing his ſmall ſeedlings until the ſpring, when they will not be liable to be turned out of their warm beds when they ſhould leaſt like it, by the rigours of the winter. But to return: After the ſeedlings are two or three years old, whether they have been removed or not, they will by that time be good ſtrong plants, fit for removing, and may be then taken up and planted out.

SALIX.

LINNEAN Claſs and Order, *Diœcia Decandria:* Male flowers containing two ſtamens, and female flowers containing one piſtil; upon diſtinct plants: There are ſeveral SPECIES; fifteen of which are cultivated in this country:

1. SALIX *Alba:* The COMMON WHITE WILLOW; *a deciduous tree*; common about towns and villages in moſt parts of Europe.

2. SALIX *Vitellina:* The GOLDEN WILLOW; *a deciduous tree*; native of England and moſt parts of Europe.

3. SALIX *Purpurea:* The PURPLE WILLOW; *a deciduous tree*; native of England and the ſouth of Europe.

4. SALIX *Pentandria:* The SWEET WILLOW; *a deciduous tree*; native of mountainous and marſhy ſwampy grounds in moſt parts of Europe.

5. SALIX *Babylonica:* The WEEPING WILLOW; *a deciduous tree*; native of the Eaſt.

6. SALIX

6. SALIX *Hermaphroditica:* The SHINING WILLOW; *a deciduous tree*; grows about Aſton in Cumberland, and alſo Upſal in Sweden.

7. SALIX *Triandria:* The TRIANDROUS WILLOW; *a deciduous tree*; native of Switzerland and Siberia.

8. SALIX *Phylicifolia:* The PHYLICA-LEAVED WILLOW; *a deciduous tree*; native of the north of Sweden.

9. SALIX *Amygdalina:* The ALMOND-LEAVED WILLOW; *a deciduous tree*; native of England and moſt parts of Europe.

10. SALIX *Haſtata:* The HASTATED WILLOW; *a deciduous tree*; native of Lapland and Switzerland.

11. SALIX *Fragilis:* The CRACK WILLOW; *a deciduous tree*; native of England and the north of Europe.

12. SALIX *Helix:* The ROSE WILLOW; *a low deciduous tree*; native (though not common) of England and the ſouthern parts of Europe.

13. SALIX *Caprea:* The SALLOW; a well-known *low deciduous tree*; native of England and moſt parts of Europe.

14. SALIX *Viminalis:* The OZIER; *a low deciduous tree*; native of England and moſt parts of Europe.

15. SALIX *Glauca:* The GLAUCUS WILLOW, or ALPINE SALLOW; *a deciduous ſhrub or tree*; native of the Alps of Lapland and the Pyrenees.

1. The WHITE WILLOW. This is a tall-growing tree, and being univerſally known needs no deſcription. The ſilvery elegance of its leaves would render it very *ornamental*, were it not for its too great commonneſs: it is a quick grower, and its wood is *uſeful* when lightneſs and a cleanneſs of grain is required *.

2. The

* HANBURY, ſpeaking of Aquatic Foreſt-Trees, ſays, "The ſorts uſed for plantations of theſe trees have hitherto been our common white and red Willow. Theſe, however, ſeem now to give place to more ſorts, which have been lately introduced. A few years ago I ſaw in the public papers an advertiſement of a Willow which would grow large enough for maſts of ſhips, &c. in twenty or thirty years; and in another paper there was an account, that theſe trees might be ſeen in full maturity at one Squire Angel's, about three miles from Weſtminſter-Bridge. I went to examine them, but when I came found them the Common White Willows, which, having liked the ſituation, had grown to a great ſize and beauty. I enquired out the author

2. The Golden Willow may be admitted into ornamental plantations, not for any extraordinary figure theſe trees will make in ſummer, but from the ſhow they make in winter; for their bark is ſmooth, and of a clear yellow; and in that ſeaſon they have a ſingular and ſtriking effect among other trees. This will not grow to near the ſize of the other ſort.

3. The Red Willow is a free ſhooter, and will grow to a ſize almoſt as large as the Common White Willow. A few of theſe only ſhould be admitted into our plantations; for they have no ſingular look in ſummer; but in winter their bark appears of a red colour, which makes a pretty variety among other trees at that ſeaſon; but it is, nevertheleſs, not near ſo ſtriking as the yellow ſort.

4. The Sweet-scented Willow. This will grow to be a large timber-tree, and the branches are covered with a ſmooth brown bark. The leaves of this ſort reſemble thoſe of the Bay-tree, and are by far the broadeſt of any of the ſorts of Willows. They are ſmooth, and have their upper ſurface of ſhining green; but their under ſurface is paler, and they are ſerrated at their edges. They emit, eſpecially when bruiſed, a grateful odour; ſo that as an aromatic it claims a place in theſe plantations among others of its own growth. Indeed it deſerves it; for air will frequently be perfumed by the fragrance of its leaves after a ſhower to a conſiderable

thor of the advertiſement, but found he knew nothing of the nature of theſe Willows, and that he had his account from a baſket-maker near Weſtminſter-Bridge. Upon applying to the baſket-maker, he diſavowed knowing any thing of the trees growing by Mr. Angel's, but ſaid he had two ſorts of Willows, which would anſwer in every reſpect to the firſt advertiſement; that they were of all others the freeſt ſhooters; that they were not ſo ſubject to rot in the ſides as the large White Willow Tree; but that they would grow ſound to timber fit for maſts of ſhips, &c. in leſs than thirty years. He added, that he had cuttings many years ago brought him from the coaſt of France, by a Captain whoſe name I have forgot. I immediately procured ſome cuttings of theſe ſorts, which grow to a miracle, and ſeem as if they would anſwer the promiſed expectation; ſo that theſe now are the trees of which our future timber-plantations ſhould conſiſt: nay, whether they are deſigned for the baſket-makers or for hurdles, they ought to have their ſhare; and ſhould always be preferred to be planted out for ſtandards for lopping, by the ſides of rivers, rills, ditches, &c. The cuttings of theſe two ſorts have been diſperſed into almoſt every quarter of England; ſo that there is no doubt but that in a few years the planting of them alone for timber will become general, as they may be encreaſed at pleaſure, by every ſlip or twig."

diſtance;

diſtance; ſo that it will readily join with other aromatics in perfuming the air with their ſpicy odours.

5. The WEEPING WILLOW of Babylon will grow to be a large tree; and no tree is more proper to be planted by rivers, ponds, over ſprings, &c. than this; for its ſlender branches are very long and pendulous; the leaves, alſo, are long and narrow; and when any miſt or dew falls, a drop of water will hang at the end of each of theſe leaves, which, together with the pendulous branches and leaves, cauſe a moſt pleaſing appearance. Lovers garlands are ſaid to have been made of the wreaths of this Willow, the branches of which are very ſlender and pliable; and the plant itſelf has always been ſought after for ornamental plantations, either to mix with others of the like growth in the largeſt quarters, or to be planted out ſingly over ſprings, or in large opens, for the peculiar variety they will occaſion by the elegance of their outline.

6. SHINING WILLOW is a large-growing tree, ſending forth ſeveral ſlender branches, which hang down, and are covered with a pale-brown bark. The leaves are ſmooth, glandulous, ſerrated, and of a yelloviſh-green colour. The flowers are numerous hairy katkins, and the male flowers have two ſtamina only. They appear early in the ſpring; and the females are ſucceeded by downy ſeeds, like the Common Willow.

7. TRIANDROUS WILLOW is a large-growing trees, ſending forth numerous, erect, flexible branches, which are covered with a greyiſh bark. The leaves are oval, ſmooth, ſpear-ſhaped, acute-pointed, ſerrated, green on both ſides, and eared at their baſe. The katkins are long, narrow, looſe, and appear early in the ſpring. This ſort is planted by the basket-makers, to mix with other kinds for their different ſorts of work.

8. PHYLICA-LEAVED WILLOW. This is a tree of rather lower growth than the former. The branches are numerous, flexible, tough, and ſerviceable for ſeveral articles in the baſket way. The leaves are ſpear-ſhaped, ſmooth, ſerrated, and waved on their edges. The flowers are long katkins, which come out early in the ſpring from the ſides of the branches; and they ſoon afford a large quantity of down, which

which is waſted about with the winds to a conſiderable diſtance.

There is a *variety* of this with broad leaves.

9. ALMOND-LEAVED WILLOW. This is a Willow of the middle ſize, ſending forth numerous flexible tough branches, covered with a light-green bark. The leaves are ſpear-ſhaped, ſmooth, ſerrated, acute, eared at their baſe, and of a light-green colour on both ſides. The flowers are oblong katkins, which turn to a light down in the ſummer.

There are ſeveral ſorts of this ſpecies, that are of inferior value to this, which is generally diſtinguiſhed from the others by the name of the *Old Almond-leaved Willow*. The branches are very tough and flexible, and when planted in the Ozier-way, and grown to be one year's ſhoots from the ſtools, are very ſtrong, and highly ſerviceable for the different purpoſes of baſket-making.

10. HASTATED WILLOW. This is a middle-ſized tree for the Willow kind, ſending forth ſeveral long, green ſhoots from the ſtools, which are full of pith, but nevertheleſs tough and ſerviceable to the baſket-maker. The leaves are nearly oval, acute, ſmooth, ſerrated, ſit cloſe to the branches, and have broad appendices at their baſe. The flowers, are an oblong, yellow katkin, and come out in the ſpring from the ſides of the young ſhoots, almoſt their whole length.

11. CRACK WILLOW is another middle-ſized tree for the Willow kind. The branches are very brittle, and covered with a browniſh bark. The leaves are oval, ſpear-ſhaped, long, ſmooth, ſerrated, green on both ſides, and have glandulous footſtalks. The katkins are long, ſlender, and the ſcales are looſely diſpoſed.

There is a *variety* of this ſpecies, with a yellow bark, which it caſts every year, called the *Almond-leaved Crack Willow*. Both ſorts are unfit for the baſket-makers uſe, being very brittle; on which account this ſpecies gained the appellation of Crack Willow.

12. ROSE WILLOW. This is of much lower growth than the former. The body of the tree is covered with a rough, yellow bark. The branches are upright, tough, and

of

of a reddiſh colour. The leaves are ſpear-ſhaped, narrow, ſmooth, of a blueiſh-green colour, and, towards the upper part of the branches, are nearly oppoſite to each other. The flowers come out from the ſides of the branches, and numbers of them are joined together in a roſe-like manner. They are of a greeniſh-white colour, and have a ſingular and beautiful look.

There are two or three *varieties* of this ſpecies. The leaves of one are downy underneath; the ſtalks of another are brittle, and the leaves green on both ſides; whilſt another has its leaves of a light-green on the upper ſurface, and glaucous underneath: They are all low-growing plants, and ſeldom cultivated for uſe.

13. SALLOW. The Sallow is well known all over England, and delights in a dry rather than a moiſt ſoil. It is a tree rather below the middle growth. The branches are numerous, ſmooth, of a dark-green colour, and their chief uſe is for hurdle-wood and the fire; though the trunk, or old wood, is admirable for ſeveral uſes in the turnery way. The leaves are oval, rough, waved, indented at the top, and woolly underneath. The katkins are very large, yellow, appear early in the ſpring, and are much reſorted to by the bees, on their firſt coming out of their hives at that early ſeaſon.

There is a *variety* of this ſpecies with long leaves, which end in acute points; and another with ſmooth leaves, beautifully ſtriped with white, called the *Striped Sallow*.

14. OZIER is a tree of rather low growth, though the ſhoots grow amazingly long and ſtrong in one year from the ſtools. The leaves are ſpear-ſhaped, narrow, long, acute, almoſt entire, of a blueiſh-green on their upper ſide and hoary underneath, and grow on very ſhort footſtalks. This is the moſt propagated of all the kinds for baſket-making: it admits of ſeveral ſorts of different value, but all are nevertheleſs uſeful to the baſket-maker.

The *varieties* uſually go by the names of the *Green Ozier*, the *Old Baſket Ozier*, *Welſh Wicker*, &c. &c. &c.

15. GLAUCOUS WILLOW. This is a low Alpine Willow, of little uſe for ornament or profit. The leaves are oval, oblong, entire, of a glaucous colour, and poſſeſſed of fine hairs on their under ſide. The katkins are large, oval, of a white colour, and appear about the time of thoſe of the Common Sallow.

All the SALICES may be PROPAGATED by planting the cuttings, which may be done at all times of the year, for they will grow if it is in ſummer; though the beſt ſeaſon is the winter, or early in the ſpring, juſt before they begin to ſhoot. The cuttings ſhould be of the laſt year's wood, ſhould be in height in proportion to their thickneſs, and always ought to be planted in an upright poſition.

The method of planting an OZIER GROUND will be given under WOODLANDS.

SALSOLA.

LINNEAN Claſs and Order, *Pentandria Digynia:* Each flower contains five males and two females: There are ſixteen SPECIES; one only of which is adapted to our Collection:

SALSOLA *Fruticoſa:* The SHRUBBY GLASSWORT, or the STONECROP-TREE; *an evergreen ſhrub*; native of the ſea-coaſts of England, France, Spain, and Perſia.

The STONECROP-TREE is a ſhrub of about four or five feet growth. It will ſhoot rather higher, if permitted; but is never more beautiful than when about a yard high. The branches are numerous, naturally grow upright, are covered with a grey bark, and are very brittle. As to the leaves, they are very much like the Common Stonecrop of our walls, which is well known, being narrow, taper, and fleſhy like them. They are of the ſame light pleaſant green, and the branches are ſtored with them in plenty. The flowers make no ſhow; neither is there any thing that is deſirable to the Gardener that ſucceeds them. This is a very hardy ſhrub; but, as we have introduced it as an Evergreen ſhrub, it may not be improper to give a hint or two for its being properly ſtationed. It ſhould be ſet in a well-ſheltered place; for although the leaves remain on all winter, yet our ſevere black froſts ſuddenly coming on them, when in an open expoſed place, deſtroy them, and cauſe them to turn black; and although the ſhrub will ſhoot out again early in the ſpring, yet the black deſtroyed leaves

will

will look very diſagreeable all winter, and be as blots among others that are leſs ſubject to theſe diſaſters. One hint more may be neceſſary; and that is, whenever this ſhrub is planted, either in ſmall or large gardens, among deciduous or evergreen trees, not to circumſcribe the tree, with ſtrings or baſs mattings, in order to confine the branches and keep them cloſer: this will effectually deſtroy all the branches and leaves, if not the whole plant; for being thus cloſely confined, the free admiſſion of the air will be excluded, which will cauſe theſe ſucculent leaves to rot and decay. This precaution is the more neceſſary, as their upright branches being heavy laden with ſuch plenty of ſucculent leaves, are ſubject to be blown down from the bottom by the high winds: and as they then muſt of courſe look irregular, and may probably overſpread ſome little plant that grows near them, it is a common thing to tie them up again to the other branches. This cuſtom, however, ought never to be practiſed; but when any of them happen to be blown down in that manner, they ſhould be taken off and thrown away.

Nothing is more eaſy than the PROPAGATION of the Stonecrop-tree; for it is encreaſed by layers, cuttings, and ſuckers. In ſhort, if ſome of theſe ſhrubs are planted, they will ſoon ſend forth many ſtalks from the roots; and if the whole be then taken up, theſe, without any other trouble, may be divided, and will each of them be a good plant; and thus in a few years, from a plant or two of this ſhrub, numbers may be obtained.

SAMBUCUS.

LINNEAN Claſs and Order, *Pentandria Trigynia:* Each flower contains five males and three females: There are four SPECIES; three of which are here treated of; the fourth, *Sambucus Ebulus*, or Dwarf Elder, is an herbaceous plant.

1. SAMBUCUS *Nigra:* The COMMON ELDER; *a deciduous ſhrub or tree*; common in moſt parts of England, but is ſaid to be originally a native of Germany.

2. SAMBUCUS *Canadenſis:* The AMERICAN ELDER; *a deciduous ſhrub*; native of Canada, Pennſylvania, and Virginia.

3. SAMBUCUS *Racemoſa:* The MOUNTAIN ELDER, or the MOUNTAIN RED-BERRIED ELDER; *a tall deciduous ſhrub*; native of the mountainous parts of the South of Europe.

1. The COMMON ELDER admits of many *varieties:*

The Black Elder.
The White-berried Elder.
The Green-berried Elder.
The Parſley-leaved Elder.
The Gold-ſtriped Elder.
The Silver-ſtriped Elder.
The Silver-duſted Elder.

The *Common Black Elder* is too well known to require any deſcription. It will grow to thirty feet high, with a large trunk; and in this caſe its wood is very valuable. The leaves and flowers have a ſtrong and diſagreeable ſmell, which renders it improper to be planted near buildings or walks which are much frequented; but if they could be planted ſingly, or a ſmall clump of them, at a diſtance from any place of reſort, there is no tree in the world will make a grander figure, or be more ſtriking when in blow; for at that time they will be covered all over with large bunches of white flowers, which will aſſume an air of majeſty at that diſtance, equal to any of the flowery tribe. "Neither may a few of them only be ſtationed in this manner; but any acute corner of the plantation, that ſhews itſelf at a diſtance, may end with one of theſe trees; for there it will diſplay its gaudy pride when in blow, and the eyes of all be feaſted by its delicious appearance, whilſt the ſenſe of ſmelling is no way incommoded by its ſtrong diſagreeable ſcent."

The *White-berried Elder* differs from the former, in that the berries are whiter; the bark, alſo, of the young ſhoots is whiter; the buds, likewiſe, at their firſt appearance, are inclined to a whiter colour; the leaves, too, are of a paler green; and the plant in general has not ſuch a ſtrong diſagreeable ſcent, though it nevertheleſs has a proportionable ſhare. A plant or two only of this ſort is to be admitted, merely for variety; though where they are required for the ſake of the berries to

make

make wine, an hedge of them may be planted, in a place that is little frequented, and they will plentifully furniſh the owner with berries for his purpoſe.

Green-berried Elder differs, in that the berries are green; the bark, alſo, of the young ſhoots is of a darker grey than that of the White; and the buds at their firſt appearance have nearly as dark a colour as that of the Common Elder. We muſt have only a plant or two of this ſort for variety; and where the berries are wanted for wine, an hedge of them may be planted in ſome diſtant place, in the ſame manner as thoſe of the White ſort.

The *Parſley-leaved Elder* varies in no reſpect from the Common ſort, except in the nature of the leaves; which are laciniated in ſuch a manner as to reſemble the leaves of ſome ſorts of parſley. Theſe leaves occaſion a wonderful variety in ſhrubbery-quarters among the leafy tribe, and on their account the plant is deemed worthy of a place in any Collection; though the flowers poſſeſs the ſame nature with the Common ſort, and emit the ſame diſagreeable ſcent.

The *ſtriped* ſorts are diſtinguiſhed by their different-coloured ſtripes; whilſt the Silver-duſted kind is remarkable for leaves finely powdered or duſted over, in a pounce-like manner, cauſing thereby a very beautiful and ſtriking appearance.

2. The AMERICAN ELDER is of a lower growth than any of the above ſorts, ſeldom riſing higher than eight or ten feet. The young ſhoots are of a reddiſh colour. The leaves on the lower part of the plant are trifoliate; others are compoſed of about two or three pairs of folioles, terminated by an odd one. Theſe folioles are ſerrated, and of a pleaſant green colour; neither do they emit ſo ſtrong a ſcent as any of the other ſorts. The flowers are produced in the ſame manner as the folioles; and are ſucceeded by berries of a reddiſh colour. Though theſe berries have not quite ſuch a ſtrong diſagreeable taſte as the Common Elder berries, yet they have a kind of phyſical flavour: nevertheleſs they are liked by ſome perſons, who are as fond of them as they are of ſome ſorts of fruit. What was ſaid of the firſt ſort, recommending its being planted ſingly, or in ſmall clumps at a diſtance, will hold good in all theſe ſorts, which when in blow will equally have the ſame noble appearance as that, except the American, which is of lower growth,

and conſequently of leſs figure than the others, and as ſuch leſs proper for the purpoſe.

3. The MOUNTAIN ELDER will grow to about ten or twelve feet high, and is a tree that is with great juſtice univerſally admired. The bark of the young ſhoots is of a reddiſh colour, and the buds in winter will be very large and turgid, and of a ſtill deeper red. The leaves are pinnated with an odd one; their folioles are ſerrated; they are placed at a good diſtance on the mid-rib, which is pretty long; and they die to a reddiſh colour in the autumn. The reddiſh-coloured branches, with their large turgid buds, have a ſingular and noble look in winter amongſt other trees; and in the ſpring, as flowering-ſhrubs, theſe trees ſeem to attempt to vie with any of the flowering tribe; for in April, and the beginning of May, they will produce their bunches of flowers at the ends of every joint of the laſt year's ſhoots. Theſe bunches of flowers are of an oval figure; a figure in which compound flowers are not commonly produced. They are not, however, of ſo clear a white as any of the other ſorts, being tinged with green; and although the tree will be covered with them, they have not the ſame ſtriking appearance; but this defect is made amends for by the peculiar form which they aſſume, and the ſcarcity of the plant itſelf. Were there nothing but the above recited properties to recommend this ſhrub, it might juſtly claim admiſſion in plenty into our choiceſt plantations: but theſe are not all its beauties; what remains is much more ſtriking and engaging; for theſe oval bunches of flowers are ſucceeded by oval bunches of berries, that are of a deep ſcarlet colour. A crop, indeed, does not always enſue; but when it does, no tree is more ſingularly beautiful than this is rendered by them, chiefly occaſioned by their colour and form, which any one muſt conceive to be delightful.

All the ſorts of Elder are PROPAGATED by cuttings. Theſe ſhould be of the laſt year's ſhoot, and each cutting ſhould conſiſt of three joints; two of which muſt be in the ground, whilſt the third is left above, to make the ſhoot. October is the beſt month for this buſineſs; and almoſt any ſoil will do, though the moiſter it is the better. Theſe cuttings may be either planted very cloſe, and removed the autumn following into the nurſery-ground; or they may be planted a foot or more aſunder,

der, and then they will be of a ſufficient diſtance until they are finally taken up, which may be any time after two years. Thus eaſy is the culture of theſe plants when known.

S M I L A X.

Linnean Claſs and Order, *Diœcia Hexandria:* Male flowers containing ſix ſtamina, and female flowers containing three piſtils, upon diſtinct plants. There are fourteen Species; eight of which are as follow:

1. Smilax *Aſpera:* The Italian Smilax, or Common Rough Bindweed, or Prickly Bindweed; *a low climber*; a native of Italy, Spain, Sicily, and France.

2. Smilax *Exceſſa:* The Oriental Smilax; *a lofty climber*; native of many parts of the Eaſt.

3. Smilax *Sarſaparilla:* The Peruvian Smilax, or Sarsaparilla; *a climber*; native of Peru, Mexico, and Virginia.

4. Smilax *Rotundifolia:* The Canada Smilax; *a climber*; a native of Canada.

5. Smilax *Laurifolia:* The Laurel-leaved Smilax; *a climber*; native of Virginia and Carolina.

6. Smilax *Tamoides:* The Briony-leaved Smilax; *a climber*; native of Carolina, Virginia, and Pennſylvania.

7. Smilax *Lanceolata:* The Lance-leaved Smilax; *a climber*; native of Virginia.

8. Smilax *Herbacea:* The Ivy-leaved Smilax; *a climber*; native of Virginia and Maryland.

1. The Italian Smilax is poſſeſſed of a long, creeping, white, fleſhy root, which ſends forth many ſlender, angular ſtalks, armed with ſtrong, ſhort, crooked ſpines, and having claſpers. If any thing is near for it to climb on, it will, by ſuch aſſiſtance, arrive at the height of ten or twelve feet. The leaves are cordated, end in acute points, are of a fine dark-green colour, indented, have nine longitudinal veins, have

their edges beſet with ſome ſhort ſpines, and are placed on tolerable long tough footſtalks. The flowers make no figure: They are white, and are produced from the wings of the ſtalks, in ſmall bunches, in June or July; and the female flowers will be ſucceeded by round red berries.

There is a *variety* of this ſpecies, which produces black berries; and from which it differs in no other reſpect; and which occaſions its being called by Gardeners the *Black-fruited Rough Bindweed*. There is alſo another ſort, with brown fruit.

2. ORIENTAL SMILAX is a lofty climber; for being planted near pretty tall-growing trees, it will aſcend to their very tops, and proudly, by ſuch aſſiſtance, ſhew itſelf to a great diſtance. The roots are thick, white, and fleſhy; and the ſtalks are angular, and armed with ſpines. The leaves are of a pleaſant green colour, and are nearly of a ſagittated figure. They are poſſeſſed of no ſpines, have longitudinal veins, and their footſtalks are tolerably long and tough. Their flowers are white, and are produced in ſmall bunches, in June and July; and the females are ſucceeded by round red fruit in their own countries, but not with us.

3. PERUVIAN SMILAX, or SARSAPARILLA, has alſo white, thick, fleſhy roots. Theſe ſend out angular ſtalks, that are armed with ſharp ſpines; but they will not climb up trees to near the height of the former. The leaves are ſmooth, being unarmed with ſpines. They are retuſe, oval, cordated, of a ſtrong green colour, have three nerves, and grow on ſtrong rough footſtalks. The flowers are produced in ſmall bunches, from the ſides of the branches. They are of little figure, and the females are ſucceeded by a ſmall, round, red fruit, where they grow naturally.

4. CANADA SMILAX has long creeping roots, which ſend forth round ſlender ſtalks, that are thinly guarded with ſharp ſtraight ſpines. The leaves are reniform, cordated, and have no ſpines. They are broader than they are long, have five ſtrong nerves, and ſhort footſtalks, from each of which grow two ſlender claſpers. The flowers are produced in ſmall bunches, in June and July. They will be ſucceeded by a ſmall berry, which will not come to perfection here.

5. LAUREL-LEAVED SMILAX has round taper ſtalks, that are beſet with ſpines. The leaves are of a ſtrong green colour,

and

and a thick conſiſtence. They have no ſpines, have three nerves, are of an oval lanceolate figure, and are about the ſize of thoſe of our Common Bay-tree. The flowers are produced in ſmall round bunches, in June and July, from the wings of the ſtalks; and theſe are ſucceeded by ſmall black berries in the autumn. This ſort is rather of a tender nature, and unleſs the ſoil be naturally dry and warm, and the ſituation well ſheltered, they will be pretty ſure of being killed in the winter.

6. Briony-leaved Smilax has large, fleſhy, white roots, which ſend forth round, taper, prickly ſtalks. The leaves are oblong, heart-ſhaped, have no ſpines, but have many veins running lengthways. Their upper ſurface is of a fine ſtrong green colour, and, being tolerably large, they make a goodly ſhow. The flowers are produced in July, in ſmall looſe bunches, and are ſucceeded by black berries.

7. Lance-leaved Smilax. The ſtalks are ſlender, taper, and free from prickles. The leaves are ſpear-ſhaped, pointed, and unarmed with ſpines. The flowers come out in ſmall cluſters, and are ſucceeded by red berries.

8. The Ivy-leaved Smilax. The ſtalks are angular, herbaceous, unarmed with ſpines, but poſſeſſed of claſpers, by which they lay hold of any thing near them for ſupport. The leaves are oval, free from ſpines, ſeven-nerved, and grow on footſtalks. The flowers of this genus make no ſhow, being poſſeſſed of no ornament except the ſegments of the calyx. Thoſe of this ſpecies are very ſmall, and are collected in ſmall umbels. They appear in June; and are ſucceeded by roundiſh berries, which ſeldom ripen in England.

Theſe ſorts are all eaſily propagated; indeed they will propagate themſelves, if a plant or two of each ſort can be obtained; for they are poſſeſſed of long creeping roots, which run under the ſurface of the ground, and will, both near the main plant and far off, ſend up young ones; which being taken up in the autumn or ſpring, or in any time of the winter, will be good plants for uſe. Thus will theſe plants by nature furniſh you ſoon with plants enough for your purpoſe, if one or two of each can be firſt procured, and planted in a light good ſoil, in proper beds prepared for the purpoſe, under warm hedges, or amongſt trees in well-ſheltered places.

SOLANUM.

LINNEAN Claſs and Order, *Pentandria Monogynia*: Each flower contains five males and one female: There are forty SPECIES; one of which, though common, claims our attention.

SOLANUM *Dulcamara*: The WOODY NIGHTSHADE, or the BITTER-SWEET; *a ligneous climber*; native of England and moſt parts of Europe.

The WOODY NIGHTSHADE. Were it not for the commonneſs of this plant, it would deſervedly claim a principal place in our eſteem, as one of thoſe ſorts that require ſupports to ſet them off; for beſides the flowers, which are of an exquiſite fine purple, and grow in bunches, it has many beauties to recommend it to our obſervation and care. The leaves ſtand on large footſtalks, and the upper ones are of an haſtated figure. Their beautiful purple flowers will be produced in ſmall cluſters, in June and July; and they are ſucceeded by oblong red berries, which will be ripe in autumn. This is the Common ſort, which is of all the moſt beautiful, though hardly ever propagated. The *varieties* of it, however, are in great eſteem with moſt people, and of theſe there are, 1. A variety with *white flowers*, which is much coveted on that account; and although theſe flowers are not ſo beautiful as the purple ones, yet the ſort being a rare plant, makes it deſirable; and this is the ſort that is cultivated, and which differs in no reſpect from the purple, only in its white flowers, thereby pleaſing the ſpectator by the variety it affords. 2. The next remarkable variety of the Woody Nightſhade is that with beautifully *variegated leaves*. Theſe plants are ſedulouſly propagated for the ſake of their finely-ſtriped leaves; ſo that there is ſcarcely a nurſeryman who does not raiſe plenty of them for ſale amongſt other ſhrubs; and they are ſo generally liked, that his diſpoſing of them will be pretty certain. This plant, as has been obſerved, is only the Common Woody Nightſhade with the leaves delightfully variegated, its flowers being of the ſame fine purple, and the fruit that ſucceeds them exactly the ſame. 3. Another variety has *thick leaves*, which are *very hairy*. This ſort grows chiefly in Africa, and muſt have a warm ſituation to live through our winters.

winters. It is, however, a very fine plant, and where ſuch a ſituation is not found, ought to be treated as a greenhouſe-plant.

All theſe ſorts are eaſily PROPAGATED by cuttings; for they will grow, if planted in any of the winter months, in almoſt any ſoil or ſituation, and will be good plants for removing by the autumn following. If the owner has only a plant or two of theſe, which he is deſirous of multiplying with certainty, let him lay the young ſtalks upon the ground, and draw over them a little ſoil, and they will effectually be good plants by the next autumn; and this will be the ſureſt way, as cuttings of moſt ſorts, though they will for the moſt part take very well, are often attended with much hazard. The variegated ſort muſt be planted upon a poor ſoil, or it will be in danger of running away from its colours.

SORBUS.

LINNEAN Claſs and Order, *Icoſandria Trigynia:* Each flower contains about twenty males and three females: There are three SPECIES:

1. SORBUS *Aucuparia:* The WILD SORB, or MOUNTAIN ASH, or QUICK-BEAM, or QUICKEN-TREE, or ROAN-TREE; *a deciduous tree*; native of England and moſt of the northern parts of Europe.

2. SORBUS *Domeſtica:* The CULTIVATED SORB, or SWEET SERVICE; *a deciduous tree*; native of the ſouth of Europe.

3. SORBUS *Hybrida:* The MONGREL SORB, or SEMI-PINNATED SERVICE; *a deciduous tree*; native of Gotlandia.

1. The WILD SORB, or MOUNTAIN ASH. Although we generally ſee this ſpecies in a ſhrubby underwood ſtate, it will nevertheleſs, if properly trained, grow to a tree of the middle ſize. It has no claim to the appellation of Mountain Aſh, except ſome diſtant reſemblance of the common Aſh in the formation of its leaves. The flowers of this tree have a pleaſing effect in the ſpring, and its berries, in autumn and winter,

winter, render it highly *ornamental*. EVELYN enumerates its *uſes*: he ſays, "beſides the uſe of it for the huſbandman's "tools, goads, &c. the wheel-wright commends it for being "all heart. If the tree be large, and ſo well grown as ſome "there are, it will ſaw out into planks, boards, and timber. "Our fletchers commend it for bows next to yew, which we "ought not to paſs over, for the glory of our once Engliſh "anceſtors: In a ſtatute of Henry VIII. you have it men-"tioned. It is excellent fuel; but I have not yet obſerved "any other uſe." HANBURY follows him, and places the Mountain Aſh among his foreſt-trees. Its wood is undoubtedly pliable and tough. Its ſhoots, from the ſtool, are generally numerous, ſtraight, and long. In the north of England the huſbandmen uſe them for whip-ſtocks to drive their teams with. For ſtakes, edders, and perhaps for hoops, no wood is better adapted than the Wild Sorb; and as an UNDERWOOD it ſeems well worth the planter's notice.

The PROPAGATION of the NATIVE SORB is from ſeeds or by layering. Having procured a ſufficient quantity of berries, they ſhould be ſowed, ſoon after they are ripe, in the ſeminary, about half an inch deep, in beds made as has been before directed. They frequently lie till the ſecond ſpring before they make their appearance; and, in the ſpring following, may be planted out in the nurſery. We need not repeat that the ſeminary ſhould be kept clear of weeds, and that the young plants in dry weather now and then ought to be refreſhed with water; neither need the gardener be reminded, that after they are planted in the nurſery way, digging the ground in the rows muſt be obſerved every winter, taking off all ſhoots alſo which would make the tree forked, and keeping the weeds hoed in the rows, till they are of ſufficient ſize to plant out where they are intended to remain.

This ſpecies will take very well from *layers*; ſo that whoever cannot procure the berries, and has a few of theſe trees, may cut them down cloſe to the ground, when they will throw out many ſtools; and if the year following theſe are laid in the ground in the ſame manner as carnations, they will have taken good root in one year. But trees cultivated this way will not grow ſo ſtraight and handſome, neither will they arrive at ſo great a magnitude as thoſe raiſed from the ſeeds.

The

The Quicken-tree will grow upon almoſt any ſoil, either ſtrong or light, moiſt or dry. It flouriſhes both on the mountains and in the woods; it is never affected by the ſeverity of the weather, being extremely hardy; and if even planted on bleak and expoſed places, it grows exceedingly well.

2. The CULTIVATED SORB, or SWEET SERVICE, is ſo diſtinguiſhed from the other, becauſe it produces eatable fruit, which in France, Italy, and other parts, is ſerved up in deſerts; and the tree is cultivated there ſolely on that account. It will grow to be larger than the Quicken-tree; and in many reſpects is ſuperior in beauty to moſt trees. It will grow with an upright ſtem; and the young ſhoots in the ſummer are ſo downy as to appear covered with meal. In the winter they are inclined to a purpliſh colour, and are ſpotted all over with whitiſh ſpots; the buds at the ends of them will be turgid, preparing for the next year's ſhoot. The leaves reſemble thoſe of the Quicken-tree; they are finely pinnated, and compoſed of ſeven or eight pair of lobes, which are terminated by an odd one. They are broader than thoſe of the Quicken-tree, ſerrated in a deeper and more irregular manner, and their under ſurface is of a much more downy nature. The flowers are white, grow in umbels, come out in May, and are ſucceeded by an agreeable fruit, which is large, fleſhy, and of various ſhapes in the different varieties.

3. The MONGREL SORB. This ſeems to be a mongrel, between the Quicken-tree and *Aria*. It is an upright-growing tree, and the young branches are of a whitiſh colour. The leaves are very downy, and pinnated at the baſe; but the upper lobes join together, thereby forming a half-pinnated leaf. The flowers are white, grow in umbels, and are ſucceeded by bunches of roundiſh berries, which will be ripe in the autumn.

The PROPAGATION of the Wild Sorb has already been given; and that culture will ſerve for all the ſorts: but in order to have good fruit of the Sweet-Service-tree, the beſt ſorts ſhould be grafted or budded upon pear or quince-ſtocks.

Theſe trees are very hardy, for they will grow in almoſt any ſoil; though they make the ſwifteſt progreſs, and arrive at the greateſt height, in a moiſt ſituation.

SPARTIUM.

LINNEAN Claſs and Order, *Diadelphia Decandria:* Each flower contains ten males and one female; the males being divided into two ſets at the baſe: There are ſixteen SPECIES; ſeven of which are proper for our collection:

1. SPARTIUM *Scoparium:* The COMMON ENGLISH BROOM; *a deciduous ſhrub*; native of England, and the ſouthern parts of Europe.

2. SPARTIUM *Junceum:* The SPANISH BROOM; *a tall deciduous ſhrub*; native of Spain, Portugal, and ſome parts of Italy and Sicily.

3. SPARTIUM *Radiatum:* The STARRY BROOM; *a low deciduous ſhrub*; native of Italy.

4. SPARTIUM *Monoſpermum:* The SINGLE-SEEDED BROOM; *a deciduous ſhrub*; native of the barren parts of Spain.

5. SPARTIUM *Angulatum:* The EASTERN BROOM; *a deciduous ſhrub*; native of the Eaſt.

6. SPARTIUM *Spinoſum:* The THORNY BROOM, or PRICKLY CYTISUS; *a tender deciduous ſhrub*; native of the ſea-coaſts of the ſouthern parts of Europe.

7. SPARTIUM *Scorpius:* The PRICKLY BROOM; *a deciduous ſhrub*; native of Spain and the ſouth of France *.

1. The ENGLISH BROOM will grow to be about ſix feet high. The branches are very flexible and numerous; they are angular; and the bark with which they are covered is of a delightful green. The leaves are both trifoliate and ſingle, the lower part of the branches producing the former, the upper part the latter. The flowers are large, and produced in May, all along the ſides of the laſt year's ſhoots, from the bottom to the top. They ſtand upon ſhort footſtalks, and ſo ornament each twig of which the whole ſhrub is compoſed, that they have a look grand beyond moſt of thoſe of the flowery tribe. Theſe flowers are ſucceeded by compreſſed pods, containing kidney-ſhaped ſeeds, all of which are very well known.

* For another Claſs of Brooms ſee GENISTA.

2. SPANISH

2. SPANISH BROOM. There are two notable *varieties* of this ſpecies: Common Spaniſh Broom, Double Spaniſh Broom.

Common Spaniſh Broom is a fine plant, and has been much ſought after as a flowering-ſhrub. It will grow to be ten feet high. The branches are taper, placed oppoſite, and covered with a ſmooth green bark. The leaves, which are not very numerous, are of a ſpear-ſhaped figure, and, like the twigs, of a fine green colour. The flowers are produced at the ends of the branches, in looſe ſpikes, in July; and there will be a ſucceſſion ſtill kept up, at the end of each ſpike, often until the froſt puts a period to their blowing. The flowers of this ſort, alſo, are ſucceeded by compreſſed pods, which contain kidney-ſhaped ſeeds, which often ripen in the autumn.

The *Double Spaniſh Broom* differs in no reſpect from the other, except that the leaves are very double. The manner of growing, colour of the ſhoot, and nature of the leaves, are exactly the ſame; and it produces very full double flowers; but theſe flowers do not come out ſo early as the ſingle ſort, it being often September before any of them will be in blow; and the ſucceſſion will be continued ſo ſlowly, that ſometimes not more than two or three flowers on a ſpike will be fully out before the froſts nip them from any further blow. This ſort is ſucceeded by no ſeeds.

3. STARRY-BROOM is a low plant, ſeldom growing more than a yard high, even when it has the advantage of culture; in the places of its natural growth, two feet it ſeldom aſpires to. Notwithſtanding the low growth of this ſhrub, however, it will occupy a large ſpace of ground in proportion to its ſize, for it extends its flexible branches all around to ſome diſtance. The branches of which it is compoſed are very narrow, angular, and grow oppoſite by pairs. The leaves are trifoliate, grow oppoſite to each other, and the folioles are awl-ſhaped, placed oppoſite, and ſpread out in ſuch a manner as to reſemble the rays of a ſtar, which occaſions its being ſo called. The flowers are produced in June and July, at the ends of the branches: they will be in a kind of ſmall cluſters or ſpikes, are of a bright-yellow colour, and of the ſame figure with the former, but proportionally ſmaller. They are ſucceeded by ſhort hairy pods,

in

in which are a few kidney-ſhaped ſeeds, which will be ripe in Auguſt or September.

4. SINGLE-SEEDED BROOM. The *varieties* of this ſpecies are, the Common Yellow, and the White-flowered.

The *Common Single-ſeeded Broom* is a plant about ſix feet in growth. Its branches, which are very numerous and tough, are angular; and the leaves, which are not very many, are of a lanceolated figure. The flowers are produced in bunches from the ſides of the branches. Theſe bunches are ſmall; but being of a fine deep-yellow colour, and alſo being in plenty all over the ſhrub, give it a beautiful look. This ſhrub blows in July; and the flowers are ſucceeded by ſhort pods, each of which contains a ſingle ſeed only, which ſeldom ripens in England.

White-flowered Single-ſeeded Broom, which is alſo called the *White Spaniſh Broom*, is of a more tender nature than the former ſort; yet not ſo tender but that it will thrive abroad with us, in any dry ſoil and well-ſheltered ſituation, if the winters are not too ſevere. After this precaution, we would adviſe the gardener not to venture his whole ſtock of theſe plants abroad, leſt a ſevere winter ſhould take them all off; but to have a few planted in pots, and ſet under ſhelter, that, in caſe the others ſhould be killed, a ſhare of theſe may ſupply their places. The White Spaniſh Broom, then, will grow to about eight feet high; and the branches are numerous, ſlender, and tough. Their bark is of a whitiſh colour, and they are taper, almoſt like a ruſh. The leaves, which are not many, are of a lanceolated figure. The flowers are white, come out in cluſters from the ſides of the branches in July, and are ſucceeded by ſhort pods, each of which contains one ſingle ſeed only.

5. The EASTERN BROOM will grow to about ſix or eight feet high. The branches of this, alſo, are numerous, ſlender, and tough. They are rather of a ſingular ſtructure, each of them affording ſix angles. The leaves, which are few, are of different figures, ſome being found ſingle only, whilſt others are trifoliate. The flowers are produced in July, at the ends of the branches, in a kind of ſpikes. They are of a paler yellow than moſt of the other ſorts, and are rarely ſucceeded by ſeeds with us.

6. PRICKLY

6. Prickly Cytisus, or Thorny Broom, has ſcarcely any buſineſs in this place, being generally reared as a greenhouſe plant; but as it will bear our moderately mild winters in a warm ſoil and ſituation, with this caution it may be introduced. It is about ſix feet in growth; and the branches are numerous, ſlender, tough, angular, and armed with long ſpines. The leaves are trifoliate; and the flowers are produced in cluſters, in June, at the ends of the branches. They ſtand on long footſtalks, are of a bright yellow, and make a good figure. They are ſucceeded by ſhort hard pods, which contain a few ſeeds of the ſame figure with the others.

7. Prickly Broom. The ſtalk of this ſpecies is woody, and ſends forth ſeveral ſlender, prickly branches, which ſpread themſelves every way. The leaves are oval, ſmooth, and in ſome varieties hairy. The flowers are moderately large; and ſome are of a deep-yellow colour, whilſt others are pale. They appear in July; and are ſucceeded by ſhort pods, containing the ſeeds, which ſeldom ripen in England.

All theſe ſorts of Broom, the Double-bloſſomed excepted, are to be propagated from ſeeds; and one method may be obſerved for all the ſorts. The ſorts that ripen their ſeeds in England are ſuppoſed to be ready at hand; the ſeeds of the others muſt be procured from the places where they grow naturally. The firſt week in April is the beſt time for ſowing the ſeeds; and this ſhould be either in drills, or on beds, half an inch deep. It will not be long before the plants appear; and as the hot weather comes on, they ſhould be ſhaded from nine o'clock in the morning till within an hour of ſunſet. Watering and conſtant weeding muſt be given them; and this is all the trouble they will require in ſummer. The reader will perceive our Common Broom to want none of this care; neither will the Common Spaniſh Broom need much of it; it is to be afforded thoſe only which are leſs common, that we may be more certain of a plentiful ſtrong crop. In the ſpring all theſe ſeedlings are to be taken up, and pricked out in the nurſery-ground, a foot aſunder, and two feet diſtant in the rows. This work muſt be done when they are one year-old ſeedlings; becauſe they naturally ſend down a ſtrong tap-root,

which, if deferred longer, will be grown ſo big as to endanger the growth of the plant. After they have ſtood in the nurſery-ground two years, they will be good plants for ſetting out where they are to remain. Thus may all the ſorts of *Spartium* be raiſed by ſeeds; though it will be highly proper to have particular regard to the ſituation of the tenderer ſorts; ſuch as the White Spaniſh Broom, the Oriental, and the ſorts called the Prickly *Cytiſus* and Prickly Broom. Theſe may be raiſed the ſame way; but the ſoil and ſituation muſt be naturally warm and well-ſheltered, and the beds ſhould be hooped to be covered with mats in froſty weather; otherwiſe the whole crop will be in danger of being loſt the firſt winter. In the ſpring they may be planted, ſome in pots (to preſerve the ſorts), others in the warmeſt places of the ſhrubbery. Another method will not be improper to be followed in raiſing the tenderer ſorts; namely, by ſowing them in pots in April, and plunging them in a ſhady border up to the rim. At the approach of the firſt froſt, they may be removed into the greenhouſe, or placed under ſome ſhelter, when they will be effectually preſerved until the ſpring; then they ſhould be turned out, and planted in ſeparate pots, which ſhould be plunged in a ſhady border, and removed under cover in the winter. By thus protecting them for a winter or two, they will get ſtronger, and be able to reſiſt the cold; and then a ſhare may be planted out in the warmeſt ſituation, whilſt the others may be removed into larger pots, to be kept, if wanted, as greenhouſe plants.

SPIRÆA.

LINNEAN Claſs and Order, *Icoſandria Pentagynia*: Each flower contains about twenty males and five females. There are nineteen SPECIES: ſix of the ligneous kind are here treated of:

1. SPIRÆA *ſalicifolia*: The COMMON SPIRÆA FRUTEX, or the Willow-leaved Spiræa; *a low deciduous ſhrub*; native of Siberia and Tartary.

2. SPIRÆA *Tomentoſa:* The RED-FLOWERING SPIRÆA; *a low deciduous ſhrub*; native of Philadelphia.

3. SPIRÆA *Hypericifolia:* The HYPERICUM-LEAVED SPIRÆA, or HYPERICUM FRUTEX; *a deciduous ſhrub*; native of Canada.

4. SPIRÆA *Crenata:* The SPANISH SPIRÆA; *a low deciduous ſhrub*; native of Spain and Siberia.

5. SPIRÆA *Opulifolia:* The GELDER-ROSE SPIRÆA; *a deciduous ſhrub*; native of Virginia, Canada, and Carolina.

6. SPIRÆA *Sorbifolia:* The SERVICE-LEAVED SPIRÆA; *a low deciduous ſhrub*; native of moiſt land in Siberia.

1. The COMMON SPIRÆA FRUTEX riſes to about four feet high. The root is ſpreading; ſo that beſides the common ſtalks which ſend forth branches, others are produced from the roots called Suckers, which by the autumn will be as high or higher than any of the whole plant. The bark on all theſe is ſmooth, and of different colours; that on the old ſtalks is red, though for the moſt part clouded with a duſky matter: The young ſhoots that grow from theſe ſtalks are lighter, though nevertheleſs of a reddiſh tinge; whilſt the bark on the ſummer ſhoots, that ſprung from the root, are nearly white. The leaves of this ſpecies are of a fine green, and grow without order on the branches. They are ſpear-ſhaped, obtuſe, naked, and their edges are ſerrated. The flowers are produced in June, at the ends of the branches that grow from the main ſtalk; and before theſe have done blowing, the ſuckers that ariſe from the roots will exhibit their flower-buds at the ends. Theſe are generally larger and fairer than thoſe that were before in blow; and by theſe ſuckers a ſucceſſion of flowers is often continued even until late in the autumn. The flowers are produced in double-branching ſpikes, which are larger downwards, diminiſh gradually, and end with an obtuſe ſpike at the top. They are of a pale-red colour; and though ſeparately each flower is ſmall, yet being produced in theſe thick ſpikes, four or five inches long, they have a good look. Theſe flowers, with us, are ſucceeded by no ornamental ſeeds. The vigorous ſhoots

of this ſhrub that ariſe from the roots are very tough, pliable, and taper, and make good riding-ſwitches.

2. The RED-FLOWERING SPIRÆA will grow to the height of about four feet; and the branches are covered with a purple bark. The leaves grow on theſe without order: they are of an oval, lanceolated figure, and unequally ſerrated. Their upper ſurface is of a fine green colour, but their under is downy: the ſtalks, alſo, are poſſeſſed of a good ſhare of this mealy kind of matter. The flowers are produced in July, at the ends of the branches, in double-branching ſpikes, like the former; and being of a bright-red colour, make a fine appearance.

There is a *variety* of this ſpecies, with white flowers.

3. The HYPERICUM-LEAVED SPIRÆA, or HYPERICUM FRUTEX, will grow to the height of about five or ſix feet, and has beauty and elegance beyond deſcription; not ſo much from its natural form of growth, or the colour of the bark or leaves, as from the flowers; for the branches are produced irregularly. The older ſhoots are covered with a dark-brown bark; the younger ſhoots are ſmooth and lighter, and are tinged with red. The leaves are ſmall, though of a pleaſing dark-green colour; they are produced irregularly on the ſhrub, and have their edges entire. The flowers are produced in May, almoſt the whole length of the branches: they are of a white colour; and though each flower is ſeparately ſmall, yet they are collected in umbels that ſit cloſe to the branches, which being thus ornamented their whole length, ſcarcely any thing but flowers, beſides the main ſtalks, are to be ſeen; ſo that the ſhrub has the appearance of one continued flower, branched out into as many different diviſions as there are twigs; for every twig at a little diſtance will look like a long narrow ſpike of flowers; and theſe being all over the ſhrub, of a pure white, the ſhow they then make is delightful.

4. SPANISH SPIRÆA will grow to be about four feet high; and the branches, which are produced irregularly, are covered with a dark-brown bark. The leaves are ſmall, of a pleaſant green

green colour, and ſerrated at their ends. The flowers are produced from the ſides of the branches, in May; they grow in roundiſh bunches, are of a whiter colour than, and being produced nearly the whole length of, the branches, make a charming ſhow, like the preceding ſort; from which this appears very little to differ, without being ſtrictly examined.

5. GELDER-ROSE SPIRÆA. Of this ſpecies there are two *varieties*, called, Virginian Gelder-roſe, and Carolina Gelder-roſe.

Virginian Gelder-roſe will grow to be ſeven or eight feet high. The branches are covered with a dark-brown bark, which peels off in the winter, and diſcovers an inner, which is ſmooth, and of a lighter colour; ſo that in winter this ſhrub has a very ragged look. The leaves reſemble thoſe of the common currant-buſh, which has occaſioned its being called by ſome the Currant-leaved Gelder-roſe. They are for the moſt part lobed like them; though all the leaves will not be alike, ſome being divided into more than three lobes, whilſt others are ſcarcely divided at all. They are ſerrated at their edges, are of a paliſh-green colour, and placed irregularly on the branches, on long green footſtalks. The flowers are produced in June, at the ends of the branches: they are white at their firſt opening, and afterwards receive a reddiſh tinge, which is ſtill heightened before they die off. Each flower ſeparately is rather ſmall; but many of them grow together, each having its ſeparate footſtalks, in large umbels. The beauty of the Common Hawthorn is known to all; and it may not be amiſs here, as the ſimile is juſt, and that the Reader may have a true idea of the flowers, to mention, that each flower ſeparately has the appearance of a ſingle flower of the Hawthorn, and that they are produced in bunches. Theſe flowers are ſucceeded by the ſame kind of bunches of reddiſh, cornered fruit, which cauſes a pretty variety in the autumn.

Carolina Gelder-roſe differs very little from the former ſort. The branches are covered with the ſame kind of falling bark; though the leaves are not lobated in the ſame manner; for theſe will be of different ſhapes; yet moſt of them are nearly

oval, but end in points, and are all unequally ſerrated round their edges. The flowers of this ſort, alſo, are white, but grow in rounder and ſmaller bunches than the other. They are ſucceeded by the like kind of cornered fruit, which is of a reddiſh colour in the autumn.

6. SERVICE-LEAVED SPIRÆA is a ſhrub of very low growth; a yard is the higheſt we ever yet knew it arrive to. The young branches are covered with a purpliſh bark. The leaves are beautifully pinnated, ſo as nearly to reſemble thoſe of the Service-tree. The folioles are oblong, and generally about four pair in number: they are uniformly ſerrated, and exceedingly ornamental to the ſhrub. The flowers are white, and produced at the ends of the branches, in July, in panicles. They are ſeldom ſucceeded by ſeeds in England.

The PROPAGATION of all the ſorts is very eaſy. It may be done by cuttings; for if the ſtrongeſt parts of the ſhoots of the laſt ſummer's growth be planted in October, in a ſhady border, moſt of them will grow, and become good plants by the autumn; ſo that by the autumn after that, they will be very proper plants to be ſet out to ſtand. But if a perſon has only a plant or two of a ſort, from which he can get but a very few cuttings, the beſt way is to layer them, and not hazard their growing this way; for although they will take freely, yet (ſays HANBURY) by ſome unſeaſonable weather, I have known whole crops of *cuttings of all ſorts* to fail. Thus, of the many thouſand cuttings of all ſorts I planted in the winter preceding the dry ſummer in 1762, very few grew; for although they were ſhaded and watered, and others planted in ſhady borders, yet ſuch large cracks and chaſms would open among them (as they did almoſt all over my plantations) as to cauſe watering to be of no ſervice; nay, the more I watered them, the harder the mould ſet, and the chaſms became greater; and notwithſtanding many of the cuttings were planted in parts that were poſſeſſed of a natural moiſture, yet the crevices there were larger, and the ground harder; and all attempts to prevent it ſeemed to be in vain. Though this is the nature of the ſoil of few nurſeries, I mention this to ſhew, that there is an hazard in planting of cuttings, unleſs the ſeaſon ſhould prove good; for this turn

I had

I had ſcarcely any grew: ſo that whatever trees will grow by cuttings, if a gentleman has only a plant or two, and wants to have them encreaſed, the beſt way is to do it by layers; and hence, of all *the ſorts before-mentioned*, if the twigs be but laid in the ground in the autumn, they will have good roots by the autumn following, many of which will be plants ſtrong enough to be planted in the ſhrubbery, whilſt the weaker may be ſet in the nurſery-ground for a year or two, to gain ſtrength. Some of theſe ſorts will throw out ſuckers, which will be good plants when taken up: nay, the firſt ſort will propagate itſelf faſt enough this way; for after it has ſtood a year or two, it will throw them out ſo vigorouſly, as has been before obſerved, that in one ſummer they will grow to be as high as the whole plant, and will have fair flowers at their ends in the autumn. And here the Gardener muſt obſerve, that after this ſort is planted in the ſhrubbery, the ſuckers muſt be conſtanty cleared off the old plants every winter, otherwiſe they will ſoon be ſo numerous and cloſe, as to loſe that beauty which always attends plants that ariſe with ſingle or with few ſtems.

STAPHYLÆA.

LINNEAN Claſs and Order, *Pentandria Trigynia*: Each Flower contains five males and three females: There are two SPECIES:

1. STAPHYLÆA *Pinnata*: The COMMON STAPHYLÆA, or BLADDER-NUT; a *deciduous ſhrub*; native of many parts of Europe.

2. STAPHYLÆA *Trifolia*: The TRIFOLIATE STAPHYLÆA, or BLADDER-NUT; a *deciduous ſhrub*; native of Virginia.

1. The COMMON STAPHYLÆA will grow to be eight or ten feet high. The older branches are covered with a brown bark;

that on the younger ſhoots is of a much lighter colour. The bark is exceeding ſmooth; the twigs are very pithy, and when broken have a very ſtrong ſcent. The buds will be turgid and large early in winter, as if ready to burſt out of their ſtipulæ, and begin their ſhoots; this cauſes the plant at that ſeaſon to have an air of health and verdure, which of courſe muſt then be very pleaſing. The leaves are pinnated, of a light-green colour, and, like all others of that nature, are very ornamental. They conſiſt of two pair of folioles, that are terminated with an odd one; which occaſions this ſort being frequently called the Five-leaved Bladder-Nut. Theſe folioles are tolerably large, oblong, pointed, and ſtand on pretty long footſtalks. The flowers are produced in long pendulous bunches, from the wings of the leaves; and are white. The buds appear in the ſpring, almoſt at the firſt dividing of the ſtipulæ, though they will not be in full blow until May. Theſe flowers are ſucceeded by large inflated bladders, in which the ſeeds are contained, and have a very ſtriking and ſingular look in the autumn. The nuts of this tree are ſmooth, and ſaid to be eaten as food by the poor people in ſome countries. They are alſo uſed by the Catholics, who compoſe ſome of their roſaries of them.

2. The TRIFOLIATE STAPHYLÆA grows to about the ſame height with the former. The elder branches will be beſprinkled, as it were, all over with greyiſh ſpots. The bark on the younger branches is perfectly ſmooth, and of a yellowiſh colour. The buds will be ſwelled early in the winter, though they will not be ſo large and turgid as thoſe of the former ſort. The leaves are trifoliate, and grow by threes on a footſtalk; which has occaſioned this plant being diſtinguiſhed by the name of Three-leaved Bladder-Nut. They are of a light-green colour; and the folioles are generally pretty large, oval, pointed, and ſerrated at their edges. The flower-buds appear at the firſt beginning of the buds to open in the ſpring; which has been known to be ſometimes ſo early as January; though the flowers will not be in full blow until May. Theſe flowers, like the former, are produced from the ſides of the branches, in long pendulous bunches: their colour is white; and they are ſucceeded by large inflated bladders, in which the ſeeds are contained. The ſeeds of both ſpecies ripen well in England.

Theſe

These ſpecies may be PROPAGATED by ſeeds, layers, or cuttings. 1. The ſeeds ſhould be ſown, ſoon after they are ripe, in the autumn, three quarters of an inch deep, in almoſt any ſort of common garden-mould made fine. In the ſpring ſome ſhare of the plants will appear; though you muſt not expect the whole crop until the ſecond ſpring following: nay, if the ſowing of the ſeeds is deferred until the ſpring, ſcarcely any of them will come up until the ſpring after. All the ſummer the beds muſt be kept clear of weeds; and if it ſhould prove dry, a gentle watering ſhould be given the young plants, which will encreaſe their growth. The ſpring after the remainder of the crop will come up; and the buſineſs of weeding muſt be continued that ſummer. In the autumn the two-years-old plants ſhould be drawn out and planted in the nurſery, a foot aſunder, and two feet diſtant in the rows; and in the beginning of March the one-year-old ſeedlings ſhould be taken up, and planted in the ſame manner. The reaſon of deferring the planting out of the younger ſeedlings is, that, being ſmall when planted out in autumn, they are often thrown out of the ground by the froſt, and many of them loſt; whereas, of larger plants there will be little danger. After they have ſtood two or three years in the nurſery, they will be good plants for any places where they are wanted. 2. Theſe ſhrubs may alſo be propagated by layers; and this muſt be performed in the autumn, on the ſhoots of the preceding ſummer, by ſlitting them at a joint, and laying them in the ground. The making of this ſlit will be neceſſary, or at leaſt the well breaking of the bark; otherwiſe they will not ſtrike root; and if this be done with judgment, they will have good roots by the autumn following, many of which will be good plants, and fit for the ſhrubbery; whilſt the weaker may be planted in the nurſery-ground for a year or two, to gain ſtrength. One caution is to be obſerved: If the layering is to be performed by twiſting the young ſhoots ſo as to break the bark, be careful not to over-do this; for being very pithy, it will kill them to be much twiſted; and if the bark is not well broke, they will not ſtrike root this way. 3. Theſe trees are to be encreaſed alſo by cuttings; from which they will grow very well. The cuttings muſt be the bottom part of the laſt ſummer's ſhoot, which ſhould be planted

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in October, in a ſhady border of light earth. If the ſpring ſhould prove dry, give them ſome watering, and there will be little fear but that moſt of them will grow.

STEWARTIA.

LINNEAN Claſs and Order, *Monadelphia Polyandria:* Each flower contains many males, and five females; the males being joined in one ſet at the baſe: There is only one SPECIES:

STEWARTIA *Malacodendron:* The STEWARTIA; *a deciduous ſhrub*; native of Virginia.

The STEWARTIA is a ſhrub of about eight or ten feet growth with us, and the branches, which are produced irregularly from the ſides of the main ſtem, are covered with a brown bark. The leaves are placed alternately on the branches, and are of much the ſize and make of thoſe of the Cherry-tree. Their upper ſurface is of a fine green, though they are lighter and hairy underneath, and have their edges moſt acutely ſerrated. In the beginning of June this tree will be in blow. The flowers are produced from the ſides of the branches: they are white, and ſeem to be compoſed of five large oval petals; but upon examining them to the bottom, we find them joined at the baſe. The flowers have a genteel look, are poſſeſſed of an air of delicacy; and this being at preſent a very ſcarce plant, makes it more valuable. It was named *Stewartia* in honour of the right hon. the Earl of Bute, as a compliment to his great ſkill in the ſcience of botany.

This Plant is PROPAGATED by layers and ſeeds. 1. The young ſhoots ſhould be layered in autumn, by making a ſlit at the joint, as is practiſed for Carnations. In the ſpring, a tall hedge of ſome kind ſhould be made on the ſouth ſide of them, bending alſo a little towards the eaſt and weſt, that they may be ſhaded all the ſummer. In dry weather they ſhould be watered; and then they ſhould remain until the March following, when they ſhould be examined to ſee if they have ſtruck root; for ſometimes they will ſtrike root pretty freely, if ſo ſhaded and watered;

watered; and ſometimes they have diſappointed our expectations after waiting two years; though cuttings will ſometimes grow. In March, however, a ſufficient quantity of pots muſt be provided, filled with good garden-mould, mixed with a ſhare of drift-ſand; and the layers ſhould be taken up, whether they have ſtruck root or not, and planted in theſe pots, which muſt be plunged up to their rims in a bark-bed. Thoſe layers that have no roots will have the parts ready for ſtriking, and this aſſiſtance will ſet them all forward; ſo that in a very little time they will become good plants. They muſt be hardened as ſoon as poſſible to the open air. For this purpoſe the pots ſhould be taken out of the beds, and plunged up to the rims in a ſhady place; and though theſe are hardy trees, it will be proper to take the pots up, and remove them into the greenhouſe, or under ſome ſhelter, for the firſt winter. At the latter end of March they may be turned out of the pots, with their mould, into the places where they are wanted to ſtand.

2. Another method of propagating theſe plants is from ſeeds, which we receive from abroad. Theſe ſhould be ſown in pots of light earth, about half an inch deep, and the pots ſhould be plunged up to the rims in a bark-bed; where all the advantages of heat, water, and ſhade, muſt be afforded them; for without theſe requiſites, it is not often that they will grow.

S T Y R A X.

LINNEAN Claſs and Order, *Decandria Monogynia:* Each flower contains about ten or twelve males, and one female: There is only one SPECIES:

STYRAX *Officinalis:* The STORAX-TREE; *a tall deciduous ſhrub*; native of Italy, Paleſtine, and Syria.

The STYRAX, in its native places of growth, will arrive to be more than twenty feet high; with us, twelve or fourteen feet is the height we may expect it to grow to. The branches are covered with a ſmooth greyiſh bark; and the younger ſhoots are of a reddiſh colour. The very wood of this tree is finely ſcented; and in Turkey and other places where it naturally

grows,

grows, that fragrant reſin called Storax exſudes from its trunk, an inciſion being firſt made. The virtues of this reſin are well known, and the tree is rendered valuable on that account. The leaves which ornament the ſlender branches, that are produced without order all around, are of a moderate ſize, and of an oval, pointed figure. Their edges are a little waved, though free from ſerratures. They grow on ſhort footſtalks, without any order, being ſometimes by pairs, ſometimes ſingly, producing a pleaſing irregularity. They a little reſemble the leaves of the quince-tree, and are of two colours; their upper ſurface is of a lucid green, but their under is hoary; and this difference of colours makes a good contraſt, eſpecially when waving with the wind, on this charming ſweet-ſcented tree. The flowers are produced in June, from the ſides of the branches, in bunches; ſeven or eight flowers will conſtitute a tuft. Their form and colour ſomewhat reſemble thoſe of the orange-tree, and their odours are diffuſed all around. Theſe flowers are ſucceeded by no fruit with us; ſo that the height of its beauty is when it is in full blow.

The PROPAGATION is from ſeeds, which we receive from abroad. Theſe muſt be ſown an inch deep, in pots of light ſandy earth, which pots ſhould be plunged in a ſhady well-ſheltered place, there to remain until the ſecond ſpring after ſowing. In March the ſeeds will be ready to ſprout; and to aſſiſt them, it will be neceſſary to take up the pots, and ſet them up to the rims in a hot-bed. When the plants come up, all convenient air muſt be given them; often water; and they ſhould be hardened ſoon to the open air. They ſhould be then ſet abroad in the ſhade, and in the winter ſhould be removed into the greenhouſe, and placed under ſhelter. In the ſpring it will not be neceſſary to force them a ſecond time in the hot-bed; for if the pots are ſet in a ſhady place up to the rims, and now and then a little watering afforded them, the plants will grow very well, and make good ſhoots that ſummer. Like greenhouſe-plants, at the approach of winter, they muſt be removed into ſhelter; and in ſpring they muſt be ſhook out of theſe larger pots, and each planted in a ſeparate ſmaller pot; and being well watered, if they are plunged into a hot-bed, it will ſet them growing finely. After they have had help this way,

way, they muſt be ſoon hardened, and the pots taken up, and ſet up to the rims in mould in a ſhady place. In winter they ſhould be placed in the greenhouſe as before; and this method muſt be continued for ſix or eight years, treating them exactly as hardy greenhouſe-plants, and ſhifting them into freſh pots, as their encreaſe of ſize by growth requires. By this time they will be woody and ſtrong; and may then, the beginning of April, be turned out of the pots, with the mould, into the places where they are deſigned to remain. If the ſoil be naturally dry and warm, and the place well ſheltered, nothing but very ſevere froſts will injure them, eſpecially after having ſtood a winter or two.

SYRINGA.

LINNEAN Claſs and Order, *Diandria Monogynia:* Each flower contains two males and one female: There are only two SPECIES:

1. SYRINGA *Vulgaris:* The COMMON LILAC; *a tall deciduous ſhrub*; native of Egypt.

2. SYRINGA *Perſica:* The PERSIAN LILAC; *a deciduous ſhrub*; native of Perſia.

1. The COMMON, or EGYPTIAN LILAC. The *varieties* of this Species are,

The Purple Lilac,
The Blue Lilac,
The White Lilac,

The *Purple Lilac* generally riſes to the higheſt ſize of any of the three ſorts, though the height of all of them is either greater or leſs, according to the ſoil in which they are planted. The Purple, in good, light, rich earth, will grow to be ſixteen or twenty feet high; and the others, in the ſame ſort of mould, nearly

nearly as high. The Purple Lilac is naturally of an upright growth, though it ſoon divides into branches; and theſe alſo, as the tree grows older, into others, all of which are covered with a ſmooth browniſh bark. All winter the plant has a bold and healthy look, occaſioned by the large and turgid purpliſh buds, which will have begun to ſwell early the preceding ſummer, and which will burſt forth into leaf ſoon in the ſpring following. The leaves are large and ſmooth, and of a pleaſant dark-green colour. They are of an oval, cordated figure, end in acute points, and grow oppoſite by pairs on the branches. The flowers will be produced in May, at the end of the ſame ſpring's ſhoot, in very large and almoſt conical bunches. They are of a purpliſh colour, are cloſely placed, and the number of which each bunch is compoſed is very great. "I have meaſured a bunch of them, ſays HANBURY, a foot long; and can any thing be thought to excel ſuch a profuſion of flowers, in its aggregate ſtate, of which each cluſter is compoſed! But many of theſe flowers appear all over the tree, mixed in an eaſy manner among the delightful leaves! ſome peeping as it were above them, and ſeveral reclining their tops, to make the appearance ſtill more free and eaſy. The value of theſe flowers is ſtill heightened by their delightful fragrance; and when their blow is over, which it will be in a fortnight or three weeks, they have paid us their tribute, except what they afford from their leaves and manner of growth; for they are ſucceeded by ſeed-veſſels, of ſuch a colour and nature as none but the curious botaniſt can find any pleaſure in obſerving."

The *Blue Lilac* differs in no reſpect from the Purple, except that the branches are rather more ſlender and leſs erect, and that it ſeldom riſes higher than twelve or fourteen feet. The branches are covered with a ſmooth browniſh bark; and the buds in the winter will be turgid like the former, though ſmaller; and they, as well as the young ſhoots, will have a blueiſh tinge. The leaves are exactly like the preceding ſort, though they will have a caſt of blue. The flowers are produced in May, in not quite ſuch large bunches as the former ſort; the bunches will be alſo looſe. They are of a fine blue colour, and admirably ſcented; and the preference is to be given with juſtice to neither of theſe trees.

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The *White Lilac* ſeems rather a ſtiffer plant than the Blue, and the branches grow more erect than any of the ſorts. The young branches are covered with a ſmooth light-coloured bark; and in winter the buds, which will be large and turgid, are of an herbaceous yellow colour, by which this ſort at that ſeaſon may be eaſily diſtinguiſhed from the others. The leaves are of the ſame figure and nature, though their colour is lighter, thereby making a variety. The flowers are of a fine white colour; and are produced in the ſame kind of large cloſe panicles as the others, which ſtand upright. They are very fair, and, in the bunches, are ſet very cloſely together, which cauſes them to be more erect than either of the two former ſorts. Thus may any perſon who has never ſeen theſe trees form an idea of their beauty when in blow; which will be very early, when the plants are ſmall; for they will begin flowering at the height of four or five feet, and will every year after afford greater plenty of flowers as they advance in growth. The bunches generally grow by pairs, two at the end of the ſame ſpring-ſhoot, though of unequal ſize, the one being generally much larger than the other.

2. The PERSIAN LILAC. The *varieties* of this ſpecies are:

The Common Perſian Lilac (or Perſian Jaſmine),
The White Perſian Lilac,
The Blue Perſian Lilac,
The Cut-leaved Perſian Lilac.

The *Common Perſian Lilac* ſeldom grows higher than five feet, and is deemed a moſt delightful flowering-ſhrub. The branches are long, ſlender, flexible, and covered with a ſmooth browniſh bark, with a blueiſh tinge, on which are often ſeveral yellowiſh punctules. The buds will be large and turgid in winter; and the leaves and flower-buds will come out early in ſpring. The leaves are of a lanceolated figure, of a fine green colour, and grow oppoſite by pairs on the branches. The flowers will be in full blow before the end of May. They are of a blueiſh colour, and are produced in the ſame kind of panicles as the other ſorts, though they will be ſmaller and looſer. Their odour is more heightened than that of the others; and the ſhrub, on the whole, is very valuable, though now pretty common. The long flexible

flexible branches have a natural tendency to hang downwards; and when in blow their bunches of flowers will greatly encreaſe this tendency; on which account it will be proper to place a few ſticks to ſupport them, which may be diſpoſed in ſuch a manner as to eſcape notice, unleſs by the niceſt examiner; and this will be proper, as the ſeeing the branches tied to ſticks in full view, would ſhew a degree of ſtiffneſs which would not look well.

White Perſian Lilac will grow to the ſame height with the former. The leaves, buds, and ſhoots are of a lighter colour. It produces its flowers at the end of May, in the ſame kind of panicles as the other (though theſe are of a white colour) and poſſeſſed of the ſame heightened odour.

Blue Perſian Lilac differs from the preceding, in that the flowers are of a deep blue colour, thereby cauſing a pleaſing variety on that account.

Cut-leaved Perſian Lilac affords the greateſt variety by its leaves; though the bark is rather darker, and the twigs ſeem ſlenderer, and are ſtill more pendulous than the other ſorts. The leaves of this ſort are divided, almoſt to the mid-rib, into an uncertain number of ſegments; and as this occaſions them to have a different, an unfrequent and a ſingular look, the value of the plant is much heightened on their account; particularly as it is in no reſpect diminiſhed in the elegance and fragrance of its flowers.

The beſt way of PROPAGATING all theſe ſorts is by layers; for if this work be performed in autumn, on the young ſhoots, they will be good plants by the autumn following. This method is particularly to be preferred in the three firſt ſorts of Lilacs, as they naturally throw out ſuch plenty of ſuckers as to weaken, unleſs conſtantly taken off, and diminiſh the beauty of the mother-plants. Plants raiſed by layering will be leſs liable to throw out ſuckers, and conſequently will be more valuable. The common way, indeed, is to take up the ſuckers, and plant them in the nurſery for a year or two, and then ſet them out finally; but theſe plants will not be ſo valuable as the others, as they will be more liable to produce ſuckers, which to the gardener, when he has got a ſufficient ſtock of plants, become very troubleſome.

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The Perſian ſorts being leſs liable to put up ſuckers, may not only be encreaſed by layers; but when they do throw out any, the ſuckers may be taken up, and deemed good plants. Cuttings of theſe ſorts, alſo, planted in Auguſt, in a ſhady moiſt place, will often grow.

The Perſian Lilacs never produce ſeeds with us, but the firſt three ſorts do; and by theſe the plants may be encreaſed; which alſo is a good method. The ſeeds ripen in the autumn; and in October they ſhould be ſown. They are rather ſmall; and therefore the mould of the beds ſhould be very fine, and they ſhould be covered over lightly. In the ſpring they will come up, and will want no other care than weeding. In the ſpring following they may be planted in the nurſery, a foot aſunder, and two feet diſtant in the rows; and here they may ſtand two or three years, when they will be of a proper ſize to be finally planted out, and will flower in a year or two after. The differences of all theſe three ſorts are generally permanent from ſeeds; ſo that a perſon may ſow them with reaſonable hopes of obtaining the ſorts the ſeeds were gathered from.

TAMARIX.

LINNEAN Claſs and Order, *Pentandria Trigynia:* Each flower contains five males and three females: There are only two SPECIES:

1. TAMARIX *Gallica:* The FRENCH TAMARISK; *a tall deciduous ſhrub*; native of France, Italy, and Spain.

2. TAMARIX *Germanica:* The GERMAN TAMARISK; *a deciduous ſhrub*; native of low overflowed places in Germany.

1. The FRENCH TAMARISK will grow to the height of about fourteen feet. The branches are few, and ſpread abroad in an irregular manner, ſome being upright, others horizontal, whilſt others decline with their ends towards the earth. The bark is ſmooth, and of a deep-red or purpliſh colour next the

ſun; but on the oppoſite ſide of the branch of a pale brown. The leaves are rather of a pale green, and very beautiful. They are very narrow; and upon examining them we find them ſcaly in a fine degree. The flowers will be produced in plenty at the ends of the branches: They grow in ſeemingly very large looſe panicles; but on examining them, we find that each is compoſed of numerous compleat flowers, which grow in ſpikes, and are produced near the extremities of the branches on the ſlender twigs all around. Each of theſe ſpikes ſeparately is but ſmall; and they are of a pale-red colour. The flowers of each ſpike are exceeding ſmall; and the number of ſtamina is five, which differs from the other ſpecies by only having half the number. This ſort flowers in July, and we have known it in full blow in September, and ſometimes in October, and even November, when the weather has been all along mild. Nothing ornamental ſucceeds the blow.

2. The GERMAN TAMARISK is of lower growth, ſeldom aſpiring higher than eight or ten feet. It is a more regular tree than the former, as the branches all naturally grow in an upright poſition. They are very brittle, are ſcented, and covered with a ſmooth yellowiſh bark. The leaves have a ſcaly appearance, and ſtand much cloſer together than thoſe of the other ſort: They are of an exceeding light-green colour, and very ornamental. The flowers are produced in July, at the ends of the branches, in long looſe ſpikes. Each ſeparate flower is ſmall, though much larger than the other ſort, and is poſſeſſed of ten ſtamina, which are alternately ſhorter. Theſe ſpikes attract the attention when in blow, and are acknowledged by all to have a fine look; neither is the noble appearance loſt when the flowers are faded; but it is continued in the ſpikes even until the ſeeds are ripe, which then ſeem to diſſolve into a ſhattered down and ſcales.

The PROPAGATION of theſe ſorts is very eaſy: Every cutting will grow that is ſet in winter, and will be a good plant by the autumn following. The encreaſing of theſe ſorts by layers has been recommended; but this is bad advice, not only as being unneceſſary trouble, when they will grow ſo freely by cuttings, but becauſe layers of this tree very often will not ſtrike root at all. We have layered them, and found them, after lying two years, without any roots; and the wound being grown up,

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differed from the other branches only in that the mould had a little altered the colour of the bark; which ſhould warn all perſons who want a ſtock of theſe plants to beware of layering: and this, no doubt, they will do when we aſſure them, the cuttings will ſtrike root as freely as thoſe of the common willow. The beſt time for the work is October, though any time of the winter will do. The cuttings ſhould be of the laſt ſummer's ſhoot; and a moiſt part of the garden is moſt eligible for them to be planted in. In two years they will be good plants for the wilderneſs or ſhrubbery, and may then be planted out in almoſt any ſoil, though they beſt like a light moiſt earth, eſpecially the German ſort; as in other countries, where it grows naturally, it is generally found in low watery grounds.

TAMUS.

LINNEAN Claſs and Order, *Diœcia Hexandria:* Male flowers containing ſix parts, and female flowers containing one part; upon diſtinct plants. There are only two SPECIES:

1. TAMUS *Communis:* The COMMON BLACK BRIONY; *a climber*; native of England, ſouth of Europe, and the Eaſt.

2. TAMUS *Cretica:* The CRETAN BLACK BRIONY; *a climber*; native of Crete.

1. The COMMON BLACK BRIONY. This has a very thick fleſhy root, full of a viſcous juice, blackiſh without, white within, and from which iſſue numerous ſlender twining ſtalks, which wind about themſelves, or any thing that is near them, and will mount, if ſupported, to about twelve feet high. The leaves are heart-ſhaped, ſmooth, undivided, of a ſhining-green colour, and grow alternately on the ſtalks. The flowers come out from the ſides of the ſtalks, in long bunches. They are ſmall, of a whitiſh colour, appear in June and July, and the females are ſucceeded by round red berries, which ripen in the autumn.

There is a *variety* of this with brown, and another with black berries.

2. CRETAN BLACK BRIONY. This has a large, fleſhy root, from which iſſue many ſlender twining branches, which, if ſupported, will riſe to about the height of the former. The leaves are trifid, or divided into three lobes. They are of a good green colour, ſmooth, and grow alternately on the branches. The flowers come out in bunches, from the ſides of the branches. They appear about the ſame time as the former; and are ſucceeded by the like kind of red berries.

The PROPAGATION of both theſe ſorts is very eaſy: It is effected by parting the roots, or ſowing the ſeeds. 1. The beſt time of parting the roots is early in the autumn, that they may be eſtabliſhed in their new ſituation before the froſts come on. 2. The ſeeds alſo ſhould be ſown in the autumn, ſoon after they are ripe, otherwiſe they will often lie until the ſecond ſpring before they make their appearance. A very few of theſe plants in the Shrubbery-quarters, will be ſufficient. The beſt way is to well-dig the ground under the trees or buſhes where you chuſe they ſhould grow; then put five or ſix berries in a place, covering them over about half an inch depth of mould. They will readily come up, will twiſt about the trees, and ſhew themſelves to greater advantage than when directed by art in their courſe.

TAXUS.

LINNEAN Claſs and Order, *Diœcia Monadelphia:* Male flowers containing many ſtamina joined in one ſet at the baſe, and female flowers containing one piſtillum; upon diſtinct plants: There are two SPECIES: TAXUS *Nucifera*; and TAXUS *Baccata:* THE YEW; *an evergreen tree*; ſaid to be a native of Britain, and moſt parts of Europe. It grows alſo in Canada.

The

The YEW will grow to a great ſize. EVELYN mentions ſome very large ones in his time; and Mr. PENNANT, in a Tour in Scotland, took notice of a Yew in Fotheringall church-yard, the ruins of which girted fifty-ſix feet and a half. The leaves of this tree form perfect feathers: the young leaflets are of a pale yellowiſh hue; but the old leaves are of a darker green. Having been accuſtomed to ſee this tree, either as a ſubject of torture or a companion of the dead, and generally in an old declining and frequently diſeaſed ſtate, we are either wholly unacquainted with its natural beauties, or overlook them. If, however, the Yew, ſtanding ſingly, be ſuffered to form its own head, it becomes *ornamental* in a ſuperior degree; it throws out its lower branches to a great extent; and, ſhooting upwards, takes a ſtrikingly conical outline; puting on a looſe genteel appearance. The timber of the Yew is tough and durable. EVELYN enumerates its *uſes*: "Beſides the uſes of the wood for bows (for which the cloſe and more deeply dyed is beſt) the artiſts in Box, cabinet-makers, and inlayers, moſt gladly employ it; and in Germany they uſe to wainſcot their ſtoves with boards of this material: alſo for the cogs of mills, poſts to be ſet in moiſt grounds, and everlaſting axle-trees, there is none to be compared with it: likewiſe for the bodies of lutes, theorboes, bowls, wheels, and pins for pulleys; yea, and for tankards to drink out of." He mentions whole woods of theſe trees diverſe miles in circuit, growing in the neighbourhood of Box-hill, in Surrey. Theſe woods, or rather, we apprehend, *plantations*, have lately been taken down (a few ſtandards excepted); and the timber of ſuch trees as were found were ſold to the cabinet-makers at very high prices, for inlaying: one tree in particular was valued at a hundred pounds, and half of it was actually ſold for fifty. The leaſt valuable were cut up into gate-poſts; which are expected to laſt for ages: even ſtakes made from the tops of Yew have been known to ſtand for a number of years. We do not mention theſe circumſtances as an inducement for making plantations of Yew, ſo much as hints to thoſe who may have Yew-trees in their poſſeſſion. Indeed, ornamental and uſeful as the Yew-tree undoubtedly is, there is one great objection to planting it: we mean its poiſonous effects upon cattle. It is obſervable, however, that in the extenſive Yew-plantations above mentioned cattle were admitted with impunity,

and ſtill range amongſt the ſtragglers that are left, without any evil conſequence. They are brouzed to the very bole: ſheep are particularly fond of the leaves, and, when the ground is covered with ſnow, will ſtand upon their hind legs, and devour them as high as they can reach. HANBURY, ſpeaking of this matter, ſays, "It has been thought dangerous to turn cattle into fields where Yew-trees grow; but, I believe, no beaſts will touch them, unleſs compelled by extreme hunger. It is true, ſeveral have loſt both horſes and cows by their eating the leaves of this tree; but this accident muſt be attributed either to the above-mentioned cauſe, or to the gardener having thrown the clippings careleſsly in places where cattle come; who, particularly cows, will eat them when about half dry as greedily as new hay. By ſuch an accident, viz. a gardener's having thrown the clippings of a Yew-tree over the wall, a neighbouring farmer of mine loſt ſeven or eight of his beſt cattle; which ought to be a caution to all gardeners, whenever theſe trees are cut, to be careful that the clippings be either carried in for the fire or buried."

The PROPAGATION of this tree is from ſeeds: In autumn, when the ſeeds are ripe, a ſufficient quantity ſhould be gathered; and being firſt cleared of their mucilage, let them be ſown neatly, in beds about half an inch deep. By being thus expeditious in planting them, many will come up the next ſpring; whereas, if the ſeeds are kept out of the ground till February, the plants will not appear until the ſpring after. During the ſummer the beds muſt be kept clean from weeds; and if the weather ſhould prove very dry, now and then watered. This will promote the growth of the hidden ſeeds, and at the ſpring may be expected a general crop. The plants being come up, no other care will be neceſſary, for two years, than keeping the beds weeded, and refreſhing them in dry weather with gentle watering. After they have gained ſtrength in theſe beds by ſtanding two years, a piece of ground muſt be prepared for them, in which they ſhould be planted at a foot aſunder. Here they may ſtand for three or four years, and may be then planted where they are deſigned to remain, or ſet out in the nurſery in rows two feet aſunder, and three feet diſtance in the rows, in order to be trained for hedges, or raiſed to a good ſize to be planted out for ſtandards.

There

There are two *varieties*; one with very *ſhort leaves*, and another with *ſtriped leaves*. Theſe are encreaſed by *layers*, and the ſtriped ſort, HANBURY tells us, muſt be ſet in a very barren ſoil, or it will ſoon become plain.

THUYA.

LINNEAN Claſs and Order, *Monœcia Monadelphia:* Male flowers containing four parts joined at the baſe, and female flowers containing one part; upon the ſame plant: There are four SPECIES; Two of them as follow:

1. THUYA *Occidentalis:* The COMMON ARBOR VITÆ; *an evergreen tree*; native of the moiſt ſwampy parts of America and Siberia.

2. THUYA *Orientalis:* The CHINESE ARBOR VITÆ; *an ever-green tree*; native of China.

1. The COMMON ARBOR VITÆ will riſe to thirty or forty feet high. The leaves of this tree are peculiarly formed, the leaflets being broad, and, in an advanced ſtate of the tree, thinly ſcattered: when bruiſed they emit a ſtrong, and to moſt people, very diſagreeable ſcent. In a youthful ſhrub-like ſtate, the Thuya nevertheleſs gives no unpleaſing variety, and may be admitted amongſt *ornamentals*. EVELYN and HANBURY arrange it amongſt Foreſt Trees; and in Canada, the Indians, we are told, apply it to many *uſes*. HANBURY tells us "the wood is reddiſh, firm and reſinous; ſo that we may eaſily judge of its value for curioſities of moſt ſorts when worked up by the reſpective artificers of turnery, joiners, cabinet-makers, &c." He ſeems however to ſpeak from theory rather than from experience.

The Arbor Vitæ is to be PROPAGATED either from ſeeds, layers, or cuttings, the former of which produce the beſt trees, though the two latter methods of propagating are more generally practiſed. 1. In order to propagate this tree from ſeeds, theſe laſt ſhould be gathered as ſoon as they are quite ripe, which will be by the beginning of October. They muſt be ſown in pots or boxes of light fine earth, being covered about a quarter of an

inch deep. The boxes ſhould immediately after be put in a well-ſheltered place, ſo that the ſeeds in them, whilſt they are preparing to diſcloſe, may not be deſtroyed by violent froſts. Being thus protected till the month of February, they muſt be brought out, and ſet along a South wall, that the ſun warming the mould may ſet the powers of vegetation at work; and whenever ſevere weather is expected, they ſhould be removed into their ſhelter, but muſt be brought out again when the fine ſpringing weather returns. With this care, the plants will come up in the ſpring; whilſt, without it, they frequently lie till the ſecond ſpring before they make their appearance, by which neglect one year is loſt. When the young plants are up, and all danger of the froſt is ceaſed, they ſhould be ſet in the ſhade where they can have the free air; and in this place they may remain all ſummer. During that ſeaſon, little water ſhould be given them; keeping them clean from weeds is the principal trouble they will cauſe. By the autumn they will have made a poor ſhoot; for this reaſon they ſhould continue in their pots or boxes, which muſt be placed in the ſame ſheltered ſituation they had at firſt, where they may remain all winter. In the ſpring they may be brought out into the ſun again, to reap the benefit of his influence at that ſeaſon; and if they are ſet in the ſhade at the beginning of May to remain there all ſummer, it will forward their growth. The ſpring following, being then two-years-old ſeedlings, they ſhould be taken out of the boxes, and planted in beds nine inches aſunder. Here they may ſtand two years, before they are ſet in the nurſery. When they are taken from theſe beds with this intent, a moiſt ſeaſon ought always to be made choice of, and they ſhould be planted a foot and a half aſunder, and two feet and a half diſtance in the rows, where they may ſtand till they are ſet out to ſtand. 2. In order to propagate this tree from layers, the ground ſhould be dug, and made light round about the ſtools, and the branches laid down ſo deep as that the top eyes may but juſt peep above the ground, all being of the young wood. But if it ſhould ſo happen, that a few of the laſt year's ſhoots on the branches ſhould have ſhot out vigorouſly, and that there are many healthy twigs which would make good layers, that are not ſo long; in order to have the greater plenty of layers, and that the ſhorter ſhoots may not be buried, it will be proper to ſhorten the longeſt, ſo that, being

all

all laid in the ground, their noſes may juſt appear above the ſurface. This will be a means of preſerving every twig, and conſequently of propagating the greater number of plants from the ſame ſtool. When theſe plants are layered, the ſhoots ought to have a gentle twiſt or a ſmall nick; for without this they will not always ſtrike root: nay, if the land is ſtrong and heavy, it is great odds but you find them without root, as you laid them, only grown bigger. Thus will one year be loſt, which ſhews the neceſſity of obſerving theſe precautions. Being layered in this manner in the autumn, by the autumn following they will have taken root; and in the ſpring, when the ſevere froſts are paſt, they may be taken from the ſtools, and planted in the nurſery, at the diſtance directed for the ſeedlings. 3. In order to propagate theſe trees from cuttings, young ſhoots ſhould be taken from the trees in Auguſt, if rain has fallen; if not, the buſineſs muſt be deferred till it does; for work of this kind ſhould never be performed till the early autumnal rains have fallen upon the earth, and made it cool and moiſt. All theſe cuttings ought to be of the laſt year's ſhoot; and if a bit of the old wood be left at the end of each, it will encreaſe the certainty of ſucceſs. The ſituation theſe cuttings ſhould have ought to be ſhady and well ſheltered; and the ſoil in which they are planted, to enſure the greater ſucceſs, ſhould be a red loam. They may be planted almoſt as thick as you pleaſe; not more, however, than four or five inches aſunder, in rows; the rows may be a foot and a half diſtance from each other; and after they are planted, a little litter may be laid between the rows, to keep the froſt out of the ground in winter, and the ſun from over-drying them in the ſummer. This litter will not only keep down the weeds, but will ſave the trouble of watering, which will be much better for the plants; for theſe young plants, juſt ſtriking root, do not much like watering, at leaſt not in great plenty, as it often cauſes the tender fibres to rot at firſt ſtriking, and ſo deſtroys the young plant. In one year theſe cuttings will have good roots; ſo that the litter may be taken away, and the ſurface of the earth turned over in the ſpring, which will cheriſh the plants, and prepare them to ſhoot vigorouſly the ſucceeding ſummer. In the autumn, being then two years old, they may be taken up, and planted in the nurſery, at the diſtance directed for the ſeedlings and layers. After they are

planted

planted in the nurſery, they will require nothing more than the uſual care of keeping them clean from weeds, and digging between the rows in winter, till they are planted where they are to remain.

October is the beſt month for planting out theſe trees, tho' any of the winter or ſpring months will anſwer. When they are planted, they ſhould be ſet a yard aſunder, and thinned and managed as has been all along directed for others which are nearly of the ſame growth.

There is a *variety* of this tree diſcovered by Mr. HANBURY, which he has named The *American Sweet-ſcented Arbor Vitæ:* this ſeems to remove a principal objection to the Common ſort; namely, the diſagreeableneſs of its ſmell. He ſays, "It came up from ſome ſcattered ſeeds at the bottom of a box I had from Pennſylvania. It has the ſame duſky look in winter as the Common ſort, though it is better furniſhed with branches; neither are they produced ſo horizontally, or hang down in the manner of the Common ſort. What makes this ſort moſt valuable is the property of its leaves; for, being bruiſed, they emit a moſt refreſhing odour, which is by many ſuppoſed to be as fine an aromatic as any we have; whereas the leaves of the other ſorts being bruiſed, to moſt people are fœtid and diſagreeable. Whether this property will be continued by ſeeds, I have not yet experienced."

2. The CHINESE ARBOR VITÆ is a much more beautiful plant than the Common ſpecies; for its branches are more numerous, and grow in a more pictureſque erect manner, and the leaves are of a fine pleaſant light-green colour; whereas thoſe of the other in winter are of a dark diſagreeable green, inclined to a duſky-brown, which is the worſt property of this tree in the winter-ſeaſon. The branches of the Common Arbor Vitæ are of a dark-brown colour, and the bark on the young branches is ſmooth; the bark of the Chineſe is alſo ſmooth, and of a light-brown. The leaves of this ſort, like the others, are imbricated, that is, they grow over each other; but they are more numerous and ſmaller, and grow cloſer together; and being of ſo fine a green, which continues all winter, makes this ſort the moſt valuable, though not to the rejection of the others, even in pleaſurable plantations; for thoſe cauſe good variety by their manner of growth, as well as the colour of their leaves. The flowers

of

of none of the ſorts have any beauty: they have males and females diſtinct; and the females of the Common Arbor Vitæ are ſucceeded by ſmooth cones, whereas the cones of the Chineſe ſort are rugged. They are larger than the Common ſort, and are of a fine grey colour.

This ſpecies, as well as the Sweet-ſcented ſort, may be PROPAGATED by layers and cuttings, as has been directed above, for the Common ſort.

TILIA.

LINNEAN Claſs and Order, *Polyandria Monogynia:* Each flower contains many males and one female: There are only two SPECIES:

1. TILIA *Europæa:* The EUROPEAN LIME, or the LINDEN-TREE; *a tall deciduous tree*; native, it is ſaid, of England, and moſt parts of Europe.

2. TILIA *Americana:* The AMERICAN LIME; *a deciduous tree*; native of Virginia and Canada.

1. The EUROPEAN LIME will grow to eighty or ninety feet high, and from twenty to thirty feet in circumference. The foliage is peculiarly ſoft and delicate, and its flowers ſweet in the extreme. It naturally forms a moſt perfectly elliptical head; and even in winter its general appearance is rendered pleaſing, by the elegance of its long ſlender twigs. As ſtandards, eſpecially in a rich deep ſoil, Limes are peculiarly eligible; they are, in ſuch ſituations, of very quick growth, and except the Oak and the Eſculus, few or no trees exceed them in point of *ornament*. The *wood* of the Lime is light, ſoft, and peculiarly fine-grained: it ranks with that of the Sycamore and the Poplar, and may ſerve upon many occaſions as a ſubſtitute for the Beech: indeed, in one point of view, it ſeems to exceed any of thoſe woods, and ſtands upon its own baſis; namely, for the purpoſe of the carver: we cannot, however, upon the whole, recommend it in general terms to the planter as a timber-tree: land ſuch as this tree requires to render it of quick growth, ought rather to be applied to the more uſeful purpoſe of huſbandry, or, if convenient or neceſſary

to

to be planted, ſhould be occupied by the more valuable Oak or Aſh; for which neceſſary woods, a certain and perpetual market may be expected.

The European Species affords ſeveral *varieties*; as,

The Narrow-leaved Mountain Lime,
The Broader-leaved Mountain Lime,
The Elm-leaved Lime,
The Green-twigged Lime,
The Red-twigged Lime.

All theſe are very inconſiderable differences; and though, if nicely obſerved, they cauſe ſome variety, yet that is ſo ſmall as not to deſerve much pains to procure them, except the Red-twigged ſort, which of all others is the moſt beautiful; becauſe, when diveſted of their leaves, its young branches exhibit their fine, ſmooth, red bark all winter, which has a pleaſing effect in all places; though in the younger plants this effect will be more ſtriking and delightful, as the bark only is red of the laſt year's ſhoots; and the ſmaller the plants are, the more of theſe and the leſs of older wood the compoſition of the tree will be; whereas, when the trees get older, the twigs will be ſhorter and leſs viſible; and though ſtill of a red colour, yet not of ſo delicate a red as the young plants wear on their bark at firſt. Sometimes theſe trees will run away from their colour, and grow with green branches; but as this is not common, the Red-twigged ſort muſt be ſtill allowed to be preferable to all others; and the ſeeds of this muſt always be ſown for the raiſing of ſorts.

The PROPAGATION of the EUROPEAN LIME is from ſeeds, cuttings, and layers: HANBURY, however, ſays, "That trees from layers or cuttings never grow ſo handſome nor ſo faſt as thoſe from ſeeds. Theſe ſhould be gathered from thriving healthy trees of the true Red-twigged kind; and then by far the greateſt part of the young plants will be of that ſort. The ſeeds will be ripe in October; and let a dry day be made choice of for gathering them. As the ſeeds grow at the extremity of the branches, and as it would be tedious to gather them with the hand, they may be beaten down by a long pole, having a large winnowing ſheet, or ſome ſuch thing, ſpread under the tree to receive them.

When

When you have got a ſufficient quantity, ſpread them in a dry place, for a few days, and then ſow them. The manner of ſowing them is in beds of rich mould, about an inch deep, and about an inch aſunder all over the bed. The plants will appear the firſt ſpring, and ſhould ſtand in the ſeminary two years, when they ſhould be removed to the nurſery, planting them in rows, about two feet and a half aſunder, and a foot and a half in the rows; and here they may remain till wanted for uſe.

2. The AMERICAN LIME. Of this ſpecies alſo there are a variety or two, which indeed differ very little in appearance from any of the Common European ſorts; for the leaves are heart-ſhaped like theirs. There are a larger and a ſmaller leaved ſort. Their edges are finely ſerrated, and end in acute points. Theſe beautifully cordated leaves, that thus run into acute points, have their under ſurface of a paler green than their upper. The larger-leaved kind is by far the fineſt ſort; and the branches vary from all others of this genus, in that they are covered with a dark-brown bark. The flowers excite no attention in the Gardener; but the Botaniſt is delighted when he finds they are furniſhed with nectaria, whereas the flowers of our Common Lime-tree have none. The flowers are produced in bunches, like our Common ſort, but make no better figure. They are very fragrant; and are ſucceeded by coriaceous capſules, containing the ſeeds.

The PROPAGATION of this ſpecies is the ſame as that of the European ſort, if ſeeds can be procured from abroad; if not, a few plants muſt be obtained. Theſe ſhould be planted in a light rich ſoil, if ſuch can be had, for in ſuch they ſhoot the ſtrongeſt; though almoſt any other will do. After theſe plants have ſtood a year or two, they ſhould be headed near the ground, for ſtools. They will then ſhoot out many young branches from theſe, which may be layered in the autumn; though if they ſtand two years there will be greater plenty of young twigs for layering; for every ſhoot of the firſt ſummer will the year following divide into ſeveral. When the layering of theſe is to be performed, which ought to be in the autumn, the ſtrong two-years ſhoots muſt be brought down; and if they are ſtiff and do not bend readily, they muſt have a gentle plaſh with the knife near

near the bottom; a ſlit ſhould be made at the joint for every one of the youngeſt twigs, and their ends bent backwards that the ſlit may keep open. This being done, the mould muſt be levelled among the layers, and the ends of them taken off to within one eye of the ground. The buſineſs is then done; and the autumn following they will have all good roots, many of which will be ſtrong, and fit to plant out to ſtand, whilſt the weakeſt may be removed into the nurſery-ground, in rows, to gain ſtrength. All the ſorts of Lime-trees will alſo grow from cuttings; but this is found to be an uncertain method; and if it was more certain, plants raiſed either by them or layers are not near ſo good as thoſe raiſed from ſeeds, which way ought always to be practiſed where they can be obtained. Where that is not to be done, any art muſt be uſed to obtain ſome few plants; and if the gardener ſhould happen to procure a cutting or two of the American ſorts, ſet them in pots, and plunge them in the bark-bed; let him water and ſhade them, and they will be ſure to grow; and theſe he may afterwards encreaſe at pleaſure.

V I B U R N U M.

LINNEAN Claſs and Order, *Pentandria Trigynia:* Each flower contains five males, and three females: There are eleven SPECIES; eight of which are proper for our collection:

1. VIBURNUM *Lantana:* The COMMON VIBURNUM; or WAYFARING-TREE, or PLIANT-MEALLY-TREE; *a deciduous ſhrub or tree*; native of England, and moſt of the northern parts of Europe.

2. VIBURNUM *Dentatum:* The SAW-LEAVED VIBURNUM; *a deciduous ſhrub*; native of Virginia.

3. VIBURNUM *Nudum:* The ENTIRE-LEAVED VIBURNUM; *a deciduous ſhrub*; native of Virginia.

4. VIBURNUM *Prunifolium:* The PLUM-LEAVED VIBURNUM, or the BLACK HAW; *a deciduous ſhrub*; native of Virginia and Canada.

5. VIBURNUM *Opulus:* The MARSH ELDER; *a tall deciduous ſhrub*; native of moiſt grounds in England, and moſt parts of Europe.

6. VIBURNUM *Acerrifolium:* The MAPLE-LEAVED VIBURNUM; *a deciduous ſhrub*; native of Virginia.

7. VIBURNUM *Caſſinoides:* The BASTARD CASSINE; or CASSIOBERRY, or SOUTH-SEA THEA; *a deciduous ſhrub*; native of Virginia.

8. VIBURNUM *Tinus:* The LAURUSTINUS; *an ever-green ſhrub*; native of Italy and Spain.

1. The COMMON VIBURNUM will grow to be twenty or more feet high, though it may be kept down to any height deſired; and in ſuch gardens as are at a diſtance from the places where it grows common, and in which it has not been before obſerved; in ſuch gardens, it is enquired after, and attracts the attention of thoſe who walk therein, almoſt as much as any ſhrub in the whole collection. The branches are not very numerous, and in winter they are covered with a ſmooth greyiſh bark, inclined to a brown colour, eſpecially near the bottom of the ſhoots. The younger, as they ſhoot, are white and downy, and the ends, eſpecially in winter, feel ſoft and woolly. The branches are long, and exceeding tough. They will often ſhoot near ſix feet from the bottom in a year; and make the beſt bands for faggoting. The leaves are very large, heart-ſhaped, very full of large veins, and have their edges ſerrated. Their upper ſurface is of a dark-green colour, but their under is white, and like cotton; and they are placed oppoſite by pairs on the branches. The flowers are produced at the ends of the branches: the buds will be formed the preceding ſummer, which continue to get larger in the autumn; all winter they will be in a ſtate of increaſe, and at that ſeaſon they terminate the ends of the branches like ſo many rough buttons. The flowers, when out, will be in large umbels, to form which theſe buds encreaſe in ſize all ſpring, but ſhew little of what may be expected from them until about

May,

May, when they begin to divide, and ſhew that they are growing to be bunches of flowers. In June, they will be wholly out, and formed into large umbels; they are of a white colour; and have a moſt noble look. Theſe flowers are ſucceeded by berries, which are alſo ornamental, and cauſe variety; for they will be firſt of a fine red colour, and afterwards of a deep black.

There is a *variety* of this ſort, with more oval leaves; but the differences are very inconſiderable in all reſpects. There is alſo the *ſtriped-leaved Viburnum*, which is coveted by thoſe who are fond of variegated plants.

2. The SAW-LEAVED VIBURNUM is ſo called, becauſe the leaves are more beautifully ſerrated than any of the ſorts. It is at preſent not very common. Its branches, leaves, and flowers, are not ſo large as the former, but they are of a more genteel growth. It will grow to the height of about ten feet. The bark is ſmooth, and of a light colour; and the leaves are of a fine light green. They are tolerably large, though nothing like thoſe of the other ſorts, and ſtand on longiſh footſtalks, which give them a fine air. They are ſtrongly veined, and have their edges finely ſerrated. They are of a roundiſh oval figure, and are placed oppoſite by pairs on the branches. The flowers are produced in June, at the ends of the branches, in very large round bunches: Their colour is white; they appear in June; and are ſeldom ſucceeded by any berries in England.

3. ENTIRE-LEAVED VIBURNUM. The ſorts of Lauruſtinus are evergreens, and have all entire leaves; but this ſpecies of Viburnum agrees in every reſpect in deſcription with two ſorts, one of which ſheds its leaves in winter, whilſt the other retains its verdure during that ſeaſon. The deciduous kind grows to about ten feet high: the younger branches are covered with a ſmooth, deep-red bark; whilſt that of the older, tho' ſmooth, is of a dark brown colour. The leaves are pretty large, and of a delightful ſhining green on their upper ſurface; but their under is paler, and much veined: they are of a lanceolated, oval figure, though their ends are rounded; their edges are entire, and they ſtand oppoſite by pairs on the branches. The flowers are produced in July at the ends of the branches in large umbels; their colour is white; and they have much the reſemblance of thoſe of the Common Lauruſtinus, though they

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are rather ſmaller. They have a genteel look; and are ſucceeded by berries, which never ripen with us.

4. PLUM-LEAVED VIBURNUM, or BLACK HAW. This ſpecies, for the moſt part, goes by the name of Black Haw, becauſe the fruit a little reſembles that of the Haw, though of a black colour. It will grow to be about ten feet high; and the branches are covered with a ſmooth reddiſh bark. The leaves are oval, and not ſo large as any of the other ſorts, being ſeldom more than two inches long, and proportionally broad. They are of a light pleaſant green colour, and have their edges finely ſerrated. Their footſtalks are pretty ſhort, and they grow for the moſt part oppoſite by pairs on the branches. The flowers are produced in June, at the ends of the branches, in large umbels. Their colour is white; but they are ſeldom ſucceeded by berries in England.

5. MARSH ELDER. Of this ſpecies there are two notable varieties. Marſh Elder with Flat Flowers. Gelder-Roſe.

The *Marſh Elder with flat flowers* will grow to be a tree near twenty feet high. The young branches are covered with a ſmooth and almoſt white bark. They are often produced oppoſite by pairs; though in general they are of an irregular growth. The young ſhoots will be cornered; and this is more perfect in the more vigorous ones, being compoſed of five or ſix flat ſides. The leaves are large and ornamental, of a fine green colour and a ſoft contexture, compoſed of three large lobes, which are jagged at their edges, and grow on glandulous footſtalks. In autumn theſe leaves have exquiſite beauty; for they die to ſo fine a red, as to have a ſtriking effect at that ſeaſon. The flowers are produced in large umbels, the beginning of June, all over the tree, and have a grand look. Each umbel is compoſed of very many hermaphrodite flowers, which of themſelves make no great figure; but they are ſurrounded by a border of male flowers, which are white, and are ſo ornamental to each buſh as to throw a luſtre over the whole tree. Neither does this ſhrub ceaſe to exhibit its beauties when the flowers are over; for beſides what it affords by its leaves, which are inferior to few other trees, both in ſummer and autumn, the hermaphrodite flowers will be ſucceeded by fine ſcarlet berries, which will grow in ſuch large bunches and be produced in ſuch plenty all over the ſhrub, as to give it.

an appearance ſuperior to almoſt any thing of the berry kind; and were it not for its commonneſs, this would, on their account only, be ranked amongſt trees of the firſt value.

The *Gelder-Roſe*, or *Snow-ball-Tree*, is a variety only of the preceding ſort; its origin was accidental, and it is kept up and continued by culture in our gardens. The nature of the ſhoots and ſize of the tree, together with the colour of the bark, differ in no reſpect from the former. The leaves alſo are of the ſame form, are produced in the ſame manner, and die away to the ſame delightful red in the autumn. The variety this ſort occaſions, then, is by the flowers; and by theſe this variety is ſo great, as to be exceeded by ſcarcely any two diſtinct ſpecies whatſoever. They are produced in the beginning of June, all over the tree, in large globular bunches. Each bunch is compoſed of numerous male flowers, of the ſame nature with thoſe that ſurround the hermaphrodite flowers of the former ſort. Their colour is white, like thoſe; but being produced in large globular heads, and in great plenty, have a much finer appearance. HANBURY adds, "It is delightful to ſee this tree uſher in the month of June, as it were, with its glorious flowers, which will then at a diſtance have the appearance of balls of ſnow, lodged in a pleaſing manner all over its head."

6. MAPLE-LEAVED VIBURNUM. This is a middle-ſized ſhrub, ſending forth ſeveral branches, which are rough, and full of pith. The leaves are compoſed of three principal lobes, like thoſe of the Maple-tree, and grow on ſmooth footſtalks. The flowers come out from the ſides of the branches, in umbels: Their colour is white, they appear in June, and are rarely ſucceeded by ſeeds in England.

7. BASTARD CASSINE, Caſſioberry-buſh, or South-Sea Thea, is rather tender, will grow to about ten feet in height, forming itſelf into a buſh by riſing with three or four ſtems, and ſending forth numerous branches from the bottom to the top. The leaves are of an oblong, lanceolated figure, ſerrated, grow oppoſite by pairs, and continue on the trees until the nipping froſts come on; inſomuch that in the early part of a mild winter, they have been taken for an evergreen. Theſe leaves are of an exceeding bitter nature, if chewed; and it is ſaid that an infuſion of them proves efficacious in removing

pain,

pain, bracing a relaxed ſtomach, and reſtoring a loſt appetite. The flowers are produced in bunches from the ſides of the branches. Their colour is white; they appear at the end of July; and are ſucceeded by red berries in the autumn. Whenever this plant is to have a ſhare in a Collection, a naturally warm and dry ſoil, that is well ſheltered, muſt be ſought for, otherwiſe there is a chance of loſing it by froſts; or if the plant is not wholly deſtroyed, the young branches will be killed, and the tree ſo haggled, as to have rather a bad appearance with others in the ſpring.

The firſt ſix ſorts are very eaſily PROPAGATED, either by ſeeds, layers, or cuttings. No particular art need be uſed for the ſeeds, whether they be of the ſorts of our own ripening, or of thoſe we receive from abroad. A border of common garden-mould, made fine, will be ſufficient; though it may be proper to obſerve, that many of them will lie until the ſecond ſpring before they appear. The beds, before and after the plants are come up, will want nothing except weeding; and when they are a year or two old, they may be planted in the nurſery, at ſmall diſtances; and in two or three years more they will be fit to be finally planted out. 2. They are all eaſily propagated by layers alſo; for if branches are pegged down, and the mould any-how thrown on them, they will have plenty of roots by the next autumn; and moſt of them will be good plants for almoſt any place. This freedom, however, ſhould be given to none but thoſe of our own country; for the American ſorts, as being ſtrangers, demand more care and neatneſs in the performance. 3. They are alſo eaſily propagated by cuttings; for the young ſhoots of theſe trees cut into lengths, and planted in a moiſt garden ſoil, in the autumn, will any of them grow; and this is our common method of propagating them: However, if a perſon has only a few plants of the American kinds, the beſt way is to make ſure of encreaſing them by layers.

If a large quantity is wanted, the beſt way to PROPAGATE the MARSH-ELDER is by ſeeds. As the GELDER-ROSE is a male flowering variety, and never produces any ſeeds, it muſt always be propagated by layers or cuttings, by which the variety will always be preſerved.

The BASTARD CASSINE is PROPAGATED by layers. The young ſhoots are fit for this purpoſe; and when they have taken root, if they are planted in pots, and protected for two or three winters, until they are grown ſtrong plants, either in a greenhouſe, or under a hotbed-frame or ſome cover, there will be leſs danger of loſing them than by planting them immediately in the nurſery, or where they are to remain for continuance. However, a perſon who has not theſe conveniences, muſt fix on the warmeſt and beſt-ſheltered ſpot he can find; and having prepared the ground, let the layers be taken from the old plants in the ſpring; if the weather be moiſt, it will be ſo much the better; and let him plant them in the nurſery, row by row, at two feet aſunder. In the ſummer, they ſhould be watered in dry weather, and when the winter froſts begin to come on, the ground ſhould be covered with peaſe-ſtraw almoſt rotten, old thatch, or tanners bark, to keep them from penetrating the roots. By this means many of the plants will be preſerved; and this care may be repeated every winter until they are planted out to ſtand. But this is not ſo good or ſo ſafe a method as potting them, and managing them as before directed; for they may be then turned out of their pots, when wanted, mould and all together, without feeling the effect of a removal.

8. The LAURUSTINUS is one of the greateſt ornaments of our gardens in the winter months, not only as it is a fine evergreen, but becauſe, during that ſeaſon, it will either be in full blow, or elſe exhibit its flowers and buds in large bunches ready to burſt open, in ſpite of all weather that may happen; and the boldneſs of theſe buds, at a time when other flowers and trees ſhrink under oppreſſive cold, is matter of wonder and pleaſure. There are many VARIETIES of *Lauruſtinus*; but thoſe moſt remarkable are, The Narrow-leaved *Lauruſtinus*. The Broad-leaved *Lauruſtinus*. The Hairy-leaved *Lauruſtinus*. The Shining-leaved *Lauruſtinus*. The Silver-ſtriped *Lauruſtinus*. The Gold-ſtriped *Lauruſtinus*.

The *Narrow-leaved Lauruſtinus* is ſo called becauſe, of all the ſorts, the leaves of this are ſmalleſt. It is generally planted among the low ſhrubs; tho' we have known it trained up againſt a wall to fourteen or ſixteen feet high. It produces its

its branches irregularly, which will grow ſo thick and cloſe as to form a buſh; for it hath that appearance when planted ſingly in open quarters. The bark in ſummer is green, and often a little hairy and glandulous; in winter it is frequently of a dark-brown colour. The leaves grow by pairs, ſtanding oppoſite, on ſtrong and very tough footſtalks. They are of an oval figure, and their edges are entire. Their upper ſurface is ſmooth, and of a ſtrong green colour; but their under is lighter, and a little hairy; and they are at all ſeaſons very ornamental. The flowers are produced in large umbels, and are well known. It generally will be in full blow in January, February, March, and April; during which time it will be covered with bloom, cauſing a delightful effect.

The *Broad-leaved Lauruſtinus* differs from the former ſort, in that the leaves are broader, and the roots proportionably ſtronger. It will arrive to a greater height than the other ſorts, and the umbels of the flowers are larger, though they will not be produced in ſuch plenty; it, nevertheleſs, makes an excellent figure.

The *Hairy-leaved Lauruſtinus* is as free a ſhooter as the other, and the leaves are frequently as large, and differs from that in ſcarcely any thing but that the leaves are hairy; the young ſhoots alſo are hairy to a great degree. In this reſpect it makes a ſmall variety. It flowers like the other ſorts; but blows rather later than thoſe.

The *Shining-leaved Lauruſtinus* is ſtill of about the ſame growth, and the leaves are large and fair. They are of an oval figure; and their upper and under ſurfaces are both ſhining, though their under is veined, and of a paler green. It differs only in that the leaves and young ſhoots are ſmooth, ſhining, and free from hairs; and being of this lucid green, force eſteem. It generally flowers later than the firſt two ſorts.

The *two variegated ſorts* are only one or other of the above ſorts, ſtriped with white or yellow; though the ſorts ſtriped with Silver we have met with have been the Broad-leaved kinds; but the Gold-ſtriped ſorts have always been the firſt, or Narrow-leaved kind, with leaves ſtriped or blotched with yellow; and on theſe accounts, thoſe who are fond of variegated plants covet them in their collection.

All theſe ſorts are eaſily PROPAGATED; for if in winter a little mould be any-how thrown amongſt the young branches, they will ſtrike root, and be good plants by the next autumn. Notwithſtanding theſe plants, however careleſsly the mould be thrown, will grow, it is not here recommended to the Gardener to practiſe that cuſtom; it is expected that he be always neat in all his work; it is mentioned here only to ſhew what may be done; but let him gently lay the branches down, ſtrip off ſome of the lower leaves, and with his hand draw the mould amongſt the young ſhoots, and leave them neated up, as if a workman had been there; and theſe will be all good plants by the autumn, the ſtrongeſt of which may be ſet out to remain, whilſt the youngeſt may be planted out in the nurſery, at ſmall diſtances, to gain ſtrength.

VINCA.

LINNEAN Claſs and Order, *Pentandria Monogynia:* Each flower contains five males and one female: There are five SPECIES; three of which will bear our open air.

1. VINCA *Major:* The LARGE-LEAVED PERVINCA or PERIWINKLE; a *ſhrub* or *climber*; native of England, France, and Spain.

2. VINCA *Minor:* The SMALL-LEAVED PERVINCA or PERIWINKLE, or the COMMON PERIWINKLE; a *climber*; native of Germany, France, and England,

3. VINCA *Lutea:* The YELLOW PERVINCA, or PERIWINKLE; a *climber*; native of Carolina.

1. The LARGE GREEN PERIWINLKE has ſmooth ſtalks of a pale green colour, which, if ſupported, will ariſe to about four or five feet high; but, unſupported, the tops turn again at about two feet high, and thus at a diſtance form the appearance

pearance of a round evergreen ſhrub, of that low ſize; and when they are deſigned for this, the ſuckers muſt be always taken off, otherwiſe they will ſoon form themſelves into a pretty large bed; for they will ſend out theſe at ſome diſtance from the rotten plant, and the very tops bending to the ground will often take root, which, unleſs taken away or prevented, will ſoon ſpread abroad, and take off the ſhrub-like appearance of the plant. The leaves are of a delightful evergreen, and ſtand oppoſite by pairs on ſtrong footſtalks. Their edges are entire, and they are of an oval heart-ſhaped figure. They are ſmooth and ſhining, and very ornamental in the winter months. The flowers are produced from the wings of the ſtalks, almoſt all the year round; are blue; but there will be ſometimes white ones ſeen amongſt them. They are compoſed of one petal, ſtanding ſingly on upright footſtalks. The tube is narrow, and nearly of a funnel ſhape; but their brim is large and ſpreading, ſo as to form a pretty large well-looking flower.

2. The COMMON GREEN PERIWINKLE has ſmooth green ſtalks, like the former, though they are much more weak and ſlender, and will trail along the ground, and ſtrike root at almoſt every joint: ſo that they will ſoon run a great way, their general ſurface putting on a kind of rock-work-like appearance; though if they are planted near other ſhrubs, they will riſe to two or three feet high, and will cauſe a pretty look amongſt them this way. The leaves are ſmooth, and of a fine ſhining green colour. They are of an oval figure, their edges are entire, and they ſtand oppoſite by pairs on ſtrong ſhort footſtalks. The flowers are compoſed of one petal. They ſpread open at the rims, and grow from the wings of the ſtalks in the ſame manner as the former, though they are much ſmaller; and as they are not ſo ſubject to flower in winter, that is another reaſon for their being held leſs valuable.

The *varieties* of this ſpecies are,

The Green Periwinkle with Blue Flowers.

The Green Periwinkle with White Flowers.

The Green Periwinkle with Double Blue Flowers.

The Green Periwinkle with Double White Flowers.

The Green Periwinkle with Double Purple Flowers.

The Gold-ſtriped Periwinkle with White, Blue, and Double Flowers.

The Silver-ſtriped Periwinkle with White, Blue, and Double Flowers.

All theſe ſorts are *varieties* of the Common Periwinkle; tho' they may differ in the colour or properties of the flowers, or the variegation of the leaves. The White-flowering Periwinkle is this very ſort, only the flowers are white; the Double Periwinkle is the ſame ſort, only the flowers are double and of a reddiſh colour; the Gold-ſtriped Periwinkle is alſo this ſort, only the leaves are beautifully variegated with a gold colour; and the Silver-ſtriped with that of ſilver: the variegations are ſo completely done, and their ſtripes ſo little ſubject to vary or run away, that they are highly eſteemed amongſt the variegated tribe. There are Double Blue and Double White flowers belonging to both theſe ſorts; and theſe are all the hardy varieties Nature affords us from this genus.

3. YELLOW PERIWINKLE has a twining ſlender ſtalk, which twiſts about whatever is near it. The leaves are oblong, and not much unlike thoſe of ſome of our willows. The flowers are both ſingle and double; and thus continue in ſucceſſion from June to the end of ſummer. This ſpecies muſt have a warm light ſoil, and a well-ſheltered ſituation.

The PROPAGATION of theſe ſorts may be eaſily ſeen to be not very difficult. With regard to the firſt ſort, the ſuckers it naturally ſends out may be taken up and multiplied at pleaſure; and the ends of the ſhoots that turn again, and ſtrike root into the ground, will be good plants when taken off: Nay, the very cuttings will grow; ſo that any deſired number of theſe plants, be it ever ſo great, may be ſoon obtained. With regard to the other ſorts, there is no end of their multiplying; for as they will ſtrike root, if permitted to lie on the ground, at every joint, one good plant of each ſort will produce a hundred of the like in a ſeaſon or two.

All theſe ſorts are very hardy, and will grow under the drip of trees, and flouriſh in all ſoils and ſituations; no plants are more proper to be ſet among low or larger ſhrubs, either in the evergreen or deciduous quarters, to form tufts or beds

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in the reſemblance of rock-work, or to be placed near other ſhrubs, by whoſe aſſiſtance their ſlender ſtalks may be ſupported to the height Nature will admit them to riſe.

VISCUM.

LINNEAN Claſs and Order, *Diœcia Tetrandria*. Male flowers containing four parts, and female flowers containing one part; upon diſtinct plants: There are nine SPECIES; one of them common in many parts of this iſland:

VISCUM *Album*: The MISLETOE; a *paraſitical plant*; native of England and moſt parts of Europe.

The MISLETOE is a ſingular plant. It will grow upon trees only; more eſpecially upon the Crab, the Hawthorn and the Maple: It is not unfrequent upon the Aſh; but ſeldom, very ſeldom indeed, is ſeen upon the Oak; and but rarely upon the Willow. It has a thick fleſhy leaf ſtanding ſtiff upon the twigs, which are green and forked. The whole of the plant is of a green colour, and of the ſhrubby, buſhy kind, riſing in numerous ſtems; dividing into forked branches; and theſe again into forked twigs, thickſet with leaves. This thickens the general ſurface of the plant, and forces it into a ſpherical or more generally a hemiſpherical form. A tree thickly ſcattered with this plant, has ſomewhat the appearance at a diſtance as if overgrown with Ivy. The Miſletoe, however, is of a lighter green than the Ivy; eſpecially when full of berries, which are of a light tranſparent Pea-green colour, and about the ſize of the common Field Pea; but when full ripe they become paler, taking the appearance of white currants. The pulp is viſcid in the extreme, being of the conſiſtence of thick gum-water. Each berry incloſes one vetch-like ſeed. In the cyder counties the Miſletoe is a miſchievous intruder upon the Apple-tree; ſo much, that were not the Farmers to cut it

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out every three or four years, or as often as neceſſary, it would deſtroy the tree. It is very common to ſee Crab-trees, eſpecially in or near woods, entirely killed by this truly paraſitical plant. This is a curious fact in Nature, and affords ample ſubject for reflection. The Miſletoe may be ſaid to be a ſuperior order of Plants; for like the animal creation it feeds not upon the juices of the earth, but upon thoſe of vegetables. This, added to its ſuppoſed medicinal qualities, aſſiſted, probably, in rendering it ſacred among the antient Britons; eſpecially when found growing upon the Oak; which tree they alſo held ſacred.

The PROPAGATION of this Plant is ſuppoſed to be, naturally, by the Miſletoe Thruſhes, which delight in its glutinous berries, and which in autumn, the ſeaſon of their becoming ripe, repair in flights to the places where the Miſletoe abounds. It ſeems to remain unaſcertained whether the ſeed be conveyed in the fœces of the bird, or whether, ſticking to its beak amongſt the glutinous matter, the bird in cleaning its beak wipes it off upon the branch of the tree it happens to perch upon. This laſt is the more probable ſuppoſition; as it has been found, that by ſtriking the ſeeds upon the clean ſmooth part of the bark of ſome or all of the trees abovementioned, this plant may be artificially propagated. We do not learn, however, that the attempt has yet been ſucceſsful upon the Oak or the Willow. It ſeems probable that the Bird, in wiping its beak acroſs the branch, ripples the cuticle or outer rind; and this ought perhaps to be copied in attempting artificial propagation. In places where this plant is unknown, the cultivation of it would add a ſtriking variety to ſhubbery-quarters.

VITEX.

LINNEAN Claſs and Order, *Didynamia, Angioſpermia.* Each flower contains four males and one female; two of the males being longer than the other two; and the ſeeds being covered. There are eight SPECIES; one only of which is proper for our Collection:

VITEX *Agnuſcaſtus:* The AGNUSCASTUS, or the TREE OF CHASTITY; a *deciduous ſhrub*; native of marſhy, moiſt places in ſome parts of France, Spain, and Italy.

The TREE OF CHASTITY (being held by the antients as conducive to that amiable virtue) affords two *varieties*:

The Broad-leaved Chaſte-tree.

The Narrow-leaved Chaſte-tree.

One deſcription will nearly ſerve for both ſorts; though it has been obſerved, that the Narrow-leaved ſort will grow to be the talleſt. The branches are produced from the bottom and ſides of the ſtalk. They are very pliable, and the joints are long. It is difficult to expreſs the colour of the bark. To ſay it is grey is not proper; and to ſay it is brown is not true; it is of a colour between both, though, in different ſoils, the bark of ſome trees will be of a darker colour than others. The leaves are digitated, being compoſed of ſeveral folioles, which ſo unite at their baſe in one common footſtalk as to reſemble an open hand. Theſe folioles are of a dark-green colour; and their number is uncertain; being five, ſix, ſeven, and ſometimes eight. They are narrow, and the longeſt grow always in the middle, whilſt the ſhorter occupy the outſides. This character is common to both the ſorts; though it is obſervable, that the folioles of the Broad-leaved ſort are both ſhorter and broader, which occaſions its being ſo called. Their edges are alſo ſerrated, whilſt thoſe of the Narrow-leaved are intire; and in this the moſt important difference of theſe plants conſiſts. The flowers of both ſorts are produced at the ends of the branches, in whorled ſpikes. Theſe ſpikes are pretty long, and their colour is that of a bluiſh purple.

ple. They appear in September and October; and are not ſucceeded by ſeeds in England. Each individual flower is inconſiderable; but the whole ſpike makes a good ſhow; and the circumſtances of the flowers being produced late, even often when moſt other flowers are over, as well as being alſo very fragrant, greatly heighten their value. The early froſts often deſtroy the beauty of theſe ſpikes, before and when they are in full blow; ſo that it is no wonder their ornamental fruit ſeldom, if ever, ſucceeds them.

There is a *variety* of each kind with white flowers.

The PROPAGATION of theſe ſorts is eaſily done, either by layers or cuttings. 1. The young ſhoots being layered, any time in the winter, will have roots by the autumn following; though it will be proper not to take them up until the ſpring, as they ſhoot late in the autumn, and have often their ends deſtroyed by the froſts. When this work is deferred till the ſpring, all the killed ends may be taken off; and all danger from ſevere froſts being over, they will meet with no check in their preparing to ſhoot. The removing of theſe trees in the ſpring, however, is not abſolutely neceſſary; for it may be done any time in the winter, though the cutting off the dead ends ſhould be deferred until the latter end of March, when they ſhould be gone over with the knife, and cut down to within an eye or two of the ground, whether planted in nurſery-lines, or finally ſet out to ſtand. 2. Plenty of plants may be ſoon raiſed by cuttings. About the middle of March is the beſt time for planting them; and they ſhould be ſet in a ſhady border of good light garden-mould. Nothing but weeding, and now and then watering, will be required all ſummer; though if the place is not naturally well ſheltered, they muſt be defended from black froſts by ſticking plenty of furze-buſhes all around them. If this be judiciouſly done, it will take off the keen edge of froſty winds, ſufficiently, and will occaſion much leſs trouble and expence than reed-hedges, &c. All theſe plants are very hardy; but they require this protection, to preſerve the young ſhoots. Here they may grow until they are fully planted out; and if it be a moiſt, light, rich ſoil, and a well-ſheltered ſituation, they will like it the better.

VITIS.

LINNEAN Claſs and Order, *Pentandria Monogynia:* Each flower contains five males and one female: There are eight SPECIES; four of which are adapted to ornamental plantations:

1. VITIS *Labruſca:* The WILD VIRGINIA GRAPE; a *climber*; native of many parts of North America.

2. VITIS *Vulpina:* The FOX GRAPE; a *climber*; native of Virginia.

3. VITIS *Lacinioſa:* The PARSLEY-LEAVED GRAPE; a *ſoft climber*; native of Canada.

4. VITIS *Arborea:* The PEPPER-TREE; a *ſhrub* or *climber*; native of Virginia and Carolina.

1. The WILD VIRGINIA GRAPE, if deſired for its climbing property, ſhould be planted among pretty large trees or ſhrubs; for, by the aſſiſtance of its well-holding tendrils, it will arrive to a great height; and if the ſhrubs that grow near it be low-growing ones, it will entirely over-top them; and in ſummer, its leaves being large, almoſt conceal them from the ſight. Theſe large ornamental leaves have their edges indented, and are nearly divided into three lobes, though they are of a heart-ſhaped appearance; and downy on their under ſide. The flowers are produced in bunches, like the other ſpecies of the Vine; and they are ſucceeded by round, rough-flavoured, black fruit.

2. The FOX-GRAPE. The name of this ſpecies naturally brings the fable of the fox and grapes to the memory; and it is very common for thoſe who are not ſkilled in the hiſtory and nature of plants, to aſk if this ſpecies is not poſſeſſed of more excellent properties, or produces more deſirable fruit, than moſt of the other ſorts of the vine; whereas, alas! this ſort is called the Fox-Grape from the ill flavour of its fruit, which is like the ſcent of a fox, and which name the inhabitants of Virginia, where it grows naturally, have given it on that account. It muſt, like the former, be planted among largiſh trees; for it will

will over-top the ſmall ones. The leaves are large, ſmooth on both ſides, of an heart-ſhaped figure, and their edges are indented. The flowers are produced in the Vine-like bunches; and they are ſucceeded by black fruit of the above-named diſagreeable flavour.

3. The PARSLY-LEAVED GRAPE. The leaves of this ſort are finely divided, and at a diſtance reſemble thoſe of parſly, though larger. The ſtem is very thick, and the ſhoots are ſtrong; ſo that when it is planted for a climber, the talleſt trees muſt be appropriated for its ſupport; otherwiſe it will be too powerful for trees of lower growth.

4. The PEPPER-TREE is a weaker ſhooting plant than any of the others, and affords ſingular beauty from its leaves. Their upper ſurface is of a fine ſhining green colour; their under is paler, and they are compoſed of a multitude of folioles of the moſt elegant and delicate texture. The ſhoots will arrive to a tolerable height by their tendrils, if they have trees near for their ſupport; but they are very liable to be killed down very low in ſevere winters; on which account the plant ſhould be ſtationed at firſt in a well-ſheltered place. Every ſpring the Gardener ſhould carefully cut off not only the dead ſhoots, but ſhorten them within an eye or two of the old wood, which will make them ſhoot ſtronger, and the leaves will be larger and finer. The flowers are white, and are produced in bunches from the wings of the ſtalks; but we have never yet perceived any fruit to ſucceed them. The name Pepper-tree is a cant name, and was given it without any meaning by the inhabitants where it grows naturally.

All theſe ſorts are PROPAGATED by cuttings, layers, or ſuckers. 1. The cutting muſt be the bottom of the laſt year's ſhoot; and if there be a bit of the old wood to it, it will be the better. 2. When raiſed from layers, the young branches ſhould be pegged down, and a little ſoil drawn over them. They will ſtrike root, and become good plants by the ſeaſon following. 3. Suckers may be taken from theſe plants, and immediately planted; or may be ſet in the nurſery for a year to gain ſtrength before they are ſet out.

U L E X.

LINNEAN Claſs and Order, *Diadelphia Decandria:* Each flower contains ten males and one female; the males being joined at the baſe in two ſets: There are two SPECIES; one of which is a green-houſe plant; the other is,

ULEX *Europæus:* The FURZE, WHIN, or GORSE; an *evergreen ſhrub*; native of England, France, and Brabant.

The FURZE is ſo extremely common in this country, that how ornamental ſoever it may be in nature, it cannot with much propriety be admitted into our *ornamental* plantations. Its *uſes* however are many; as a fuel where wood and coals are ſcarce; and as hedge-wood upon light barren land: its uſe as horſe provender too ſeems to be fully proved, though not yet eſtabliſhed.

HANBURY enumerates the following *varieties*; ſome of which, if properly trained, may add a kind of ſecondary ornament to our grounds and ſhrubberies.

The White-flowered Furze.
The long Narrow-ſpined Furze.
The Short-ſpined Furze.
The large French Furze.
The Round-podded Furze.
The Dwarf Furze.

The FURZE is PROPAGATED from ſeeds ſown very ſhallow, in February or March. See the Article HEDGES.

U L M U S.

LINNEAN Claſs and Order, *Pentandria Digynia:* Each flower contains five males and two females.—LINNEUS makes only three SPECIES of ULMUS:

1. ULMUS

1. ULMUS *Campeſtris:* Leaves double-ſawed; unequal at the baſe.

2. ULMUS *Americana:* Leaves equally ſawed; unequal at the baſe.

3. ULMUS *Pumila:* Leaves equally ſawed; equal at the baſe.

MILLER enumerates ſix SPECIES:

"1. ULMUS *Campeſtris:* Elm with oblong acute-pointed leaves, which are doubly ſawed in their edges, and unequal at their baſe; called The COMMON ROUGH or BROAD-LEAVED WITCH ELM.

2. ULMUS *Scaber:* Elm with oblong oval leaves, which are unequally ſawed, and have leafy empalements to the flowers; called The WITCH HAZEL, or VERY BROAD-LEAVED ELM; by ſome unſkilful perſons called The ENGLISH ELM.

3. ULMUS *Sativa:* Elm with oval acute-pointed leaves, which are double ſawed, and unequal at the baſe; called The SMALL-LEAVED or ENGLISH ELM.

4. ULMUS *Glaber:* Elm with oval ſmooth leaves, which are ſharply ſawed on their edges; called The SMOOTH-LEAVED WITCH ELM.

5. ULMUS *Hollandica:* Elm with oval acute-pointed rough leaves, which are unequally ſawed, and a fungous bark; called The DUTCH ELM.

6. ULMUS *Minor:* Elm with oblong ſmooth acute-pointed leaves, which are doubly ſawed; called The SMOOTH NARROW-LEAVED ELM, and by ſome The UPRIGHT ELM."

Theſe ſix ſpecies of MILLER are all of them comprehended in the ULMUS *Campeſtris* of LINNEUS; ſo that MILLER is ſilent as to the ſecond and third ſpecies of LINNEUS; and ſo is HANBURY, who only treats botanically of one ſpecies; namely, the ULMUS *Campeſtris* of LINNEUS: He nevertheleſs enumerates ſeven SORTS:

1. The true Engliſh Elm.
2. The Narrow-leaved Corniſh Elm.
3. The Dutch Elm.
4. The Black Worceſterſhire Elm.
5. The Narrow-leaved Wych Elm.

6. The

6. The Broad-leaved Wych Elm.
7. The Upright Wych Elm.

In another part of his work he ſays, "It would be endleſs, as well as needleſs, to enumerate the ſorts of Elms: I have counted in my time more than twenty, in woods, hedges, &c. that have fell in my way when in queſt of plants." The fact is, no genus of plants whatever is more incomprehenſible to the Botaniſt than the Ulmus; for although we ſee among the cultivated Elms of this country, individuals as different from each other as are ſome individuals of diſtinct genera, yet every man who has attended cloſely to the ſeveral kinds of Elms growing in different parts of the kingdom, muſt have obſerved ſuch a chain of intermediate kinds as renders claſſification extremely difficult; and muſt frequently have met with an individual, which he was puzzled to find a name for. LINNEUS, no doubt, having experienced this, lumped the whole maſs of cultivated Elms in one ſpecies,—The *Ulmus Campeſtris*:—and as a BOTANIST he may be right: as PLANTERS, however, we muſt beg leave to attempt a ſeparation; and yet we are obliged to confeſs, that we cannot *deſcribe* more than TWO *obviouſly diſtinct* VARIETIES. With reſpect to the ſecond and third ſpecies of LINNEUS, we take it for granted they have not yet been introduced, or are but little known, in this country (if we are wrong, we beg to be ſet right): We therefore proceed to

ULMUS *Campeſtris*: The CULTIVATED ELM; *a tall deciduous tree*; found growing more or leſs, in one or other of its varieties, in hedges about villages, in moſt parts of Europe.

The CULTIVATED ELM. Notwithſtanding the chain of varieties abovementioned, if we examine the two extremities, we ſhall find two plants very different from each other in their general appearance; and ſufficiently diſtinct in the analyſis to be conſidered, in a work of this nature, as diſtinct ſpecies: The leaf of the one is nearly oval, with an obtuſe lance-like point; that of the other nearly circular, ſaving a narrow ſlender point, growing as it were out of the periphery of the circle. The membrane of the one is groſs and rigid, of the other comparatively thin, delicate, and ſupple: When held againſt a ſtrong light, the former appears opake; the latter, comparatively tranſparent. The nerves of *that* are ſtronger, ſet cloſer, and run more parallel; of *this*, more ſlender, fewer

in number, and divide more into branches. *That*, in its general appearance, bears ſome reſemblance to the leaf of the Cheſnut; *this*, a very ſtrong one to that of the Hazel. The branches of the Coarſe-leaved ſort are clean, ſtraight, and ſlender, with a ſilvery bark; thoſe of the Fine-leaved kind more divided, run ſhorter lengths, and are covered with a leſs delicate bark. The general tendency of the latter is more upright, being eaſily trained to a great length of ſtem; that of the former is to divide into ſpreading arms, and when attempted to be trained up with a tall ſtraight ſtem, generally grows ſtooping with a nodding head like the panicles of an oat. The Coarſe-leaved kind matures its ſeed in this iſland, and is probably a native; the Fine-leaved ſort ſeldom if ever perfects its ſeed with us, and is probably an exotic.

We therefore proceed to treat ſeparately of theſe two ſorts; conſidering the intermediate kinds as ſubordinate varieties of theſe two:

1. The COARSE-LEAVED ELM, or the Cheſnut-leaved Elm, or the Broad-leaved Elm, or the Wych Elm, or the North-country Elm.

2. The FINE-LEAVED ELM, or the Hazel-leaved Elm, or the Narrow-leaved Elm, or the South-country Elm.

1. The COARSE-LEAVED ELM will grow to a very great ſize. Mr. Marſham mentions a Wych Elm by Bradley Church in Suffolk, which in 1754 meaſured (at five feet high) twenty-five feet five inches and a half, and in 1767 twenty-ſix feet three inches. The leaves of this ſpecies of Elm have been already deſcribed to be of an oval figure, with a thick membrane and ſtrong nerves; their ſize varies with the individuals they grow upon, ſome trees of this ſpecies bearing leaves conſiderably ſmaller, and *much narrower* than thoſe of ſome individuals of the Hazel-leaved ſort: The common diſtinction therefore of theſe two kinds of Elms into *Broad-leaved* and *Narrow-leaved* is altogether improper—their *figures* forbid it: It would be equally proper to diſtinguiſh an oval from a circle, by calling the former broad, and the latter narrow.

The outline or general appearance of this tree is ſometimes ſtrongly featured, coming near to that of the Oak: In general, however, it is liable to be ragged, rather than irregular, and in point of *ornament* is frequently exceeded by the Lime, the Beech,

Beech, and its ſiſter tree the Fine-leaved Elm. Its *uſes* are many. The whole tribe of Elms have a peculiar excellency by which they ſtand alone, and are rendered in a great meaſure independent of other woods. The Oak is pre-eminent for durability, the Aſh for toughneſs, the Beech for cloſeneſs of texture and cleanneſs of grain, and the Elm for its tenacity or adheſive quality, being leſs liable to be ſplit than other woods: This renders it ſingularly uſeful for many important purpoſes. The keels of ſhips are now almoſt univerſally laid with Elm, and ſometimes the gunwales, eſpecially of ſhips of war, are made of this wood; it being leſs liable to ſplinter off in action even than Engliſh Oak; as keels made of this wood are leſs apt to ſplit in taking the ground. Another very important uſe of Elm is for naves of wheels of carriages of every kind, whether of uſe or of pleaſure. There is a ſort in Yorkſhire peculiarly adapted to this purpoſe, which goes by the name of the *Nave-Elm*; it is of the Coarſe-leaved kind.

The Coarſe-leaved Elm may be PROPAGATED from ſeeds, or by layering. HANBURY ſays, "In order to propagate them by layers, proper ſtools for the purpoſe muſt be firſt obtained; to procure which, let a piece of good ground be double dug, and plant Elms of about four or five feet high over it, at the diſtance of about ten feet: If they make good ſhoots in the firſt year after, they may be cut down early in the ſpring following; if not, they ſhould remain two years before they are headed for ſtools; which ſhould be by cutting them down to within half a foot of the ground. After they are cut down, they ſhould be ſuffered to grow undiſturbed for two years: The ground between the ſtools muſt be dug in the winter, and conſtantly hoed as the weeds ariſe in the ſummer; and at the end of that time, that is two years, the branches growing from theſe ſtools will be fit for layering; which may be performed thus: Excavate a piece of ground wide enough to receive a whole branch, and let the hollow be about half a foot deep; then ſplaſh the branch with a knife, near the body of the ſtool, that its head may be more readily brought into the prepared place: Next, thruſt an hooked ſtick into the ground, to hold it cloſe; take off all the ſuperfluous branches, which croſs and would otherwiſe incommode thoſe that are to be continued. After this, cut all the remaining young branches acroſs half through

with the knife; turn the edge towards the end, ſlitting it about half an inch. When this is done on all the young branches, the mould ſhould be gently put amongſt them, and every one of them ſhould have their ends bent towards the ſtool, that the ſlit may be open. Laſtly, having the whole vacuity filled with its own mould, ſmooth and even, take the end of each twig off that peeps above the ground, down to one eye, and the branch is layed, and will afford you as many plants as there are buds peeping out of the ground. Proceed in like manner to the other branches of the ſame ſtool, then to the next ſtool in order, and ſo on until the whole buſineſs of layering is finiſhed. By the autumn following, theſe layers will have taken root, and many of them will have made a ſhoot of near a yard in length. It is now neceſſary to take them from their ſtools, and plant them in ſome double-dug ground in the nurſery. They ſhould be ſet in rows three feet aſunder, and the diſtance allowed them from each other in the rows ought to be a foot and a half. Here they may ſtand till they are planted out where they are to remain, with no farther trouble than digging the ground between the rows every winter, and in the ſummer carefully watching thoſe which ſhoot out two branches at the head, and nipping the weakeſt of them off. After the layers are taken up, the ſtools muſt have all the wounded parts, occaſioned by the former ſplaſhing, taken away; the old branches alſo ſhould be cut off, pretty cloſe to the ſtem; and in the ſpring they will begin to ſhoot out freſh branches again, for a ſecond layering, which will likewiſe be ready to have the ſame operation performed the ſecond year after: and thus may this layering be performed on theſe ſtools every other year. But nurſerymen who would raiſe great quantities of trees this way, ſhould be provided with two quarters of ſtools, to come in alternately, ſo that from one or other of them they may annually receive a crop." We have given Mr. HANBURY's method in his own words, in order to convey to our readers in the fulleſt manner *his method of layering*.

His method of PROPAGATING the Elm from ſeeds, we alſo give at length; for the Elm ſtanding next to the Oak at the beginning of his book, he has treated more fully of that article than any other (the Oak only excepted), and frequently refers

to

to it in the courſe of his work. He ſays, "Let the ſeeds be gathered the beginning of June, it being the time when they are full ripe. When gathered, ſpread them three or four days to dry; for if they were to be ſown immediately after they were gathered, they would rot. Having been ſpread about that time, and the mould, which ought to be freſh and good, being in readineſs for their reception, mark out your beds four feet wide, and let the alleys between them be a foot and a half or two feet broad. Rake the mould out of the beds until they are about an inch deep; riddle that which came out of the beds into them again, until the bottom of each bed is raiſed half an inch (*i. e.* half filled) with riddled mould; then gently preſs the mould down with the back of the ſpade, and ſow the ſeeds thinly all over it with an even hand, covering them down with fine earth about half an inch deep. When the ſeeds are all ſown this way, the beds ſhould be hooped, and covered with mats, to be ſhaded in that hot ſeaſon of the year; and they ſhould alſo ſometimes be refreſhed with water: Part of the young plants will come up in about a month, or ſooner; the others not till the ſpring following. From the time the ſeeds are ſown to their appearance above ground, whenever rain falls, be careful to uncover the beds, and as ready to cover them again when the ſcorching beams of the ſun break out. About the end of Auguſt, the mats ſhould be wholly taken away, that the plants may be hardened againſt winter: The ſpring following, a freſh breed will preſent themſelves among thoſe that came up the ſummer before. All the ſummer following they ſhould be conſtantly kept free from weeds, and watered as often as dry weather ſhall render it neceſſary; and in October or ſpring they may be planted out in the nurſery, at the diſtance before preſcribed for the layers, and afterwards ſhould be managed like them."

2. The FINE-LEAVED ELM will alſo grow to a great height and conſiderable bulk: We do not however find any tree of this kind upon record. The largeſt Elms we have ſeen, of the Fine-leaved ſort, grow in the Vale of Glouceſter. There are ſeveral in the pariſh of Church-down which girt, at five feet high, from ten to twelve feet. But the fineſt Elm in the Vale ſtands in the road between Cheltenham and Tewkeſbury,—within a few hundred yards of the Boddington Oak (See QUERCUS). It is known by the name of PIFFE's ELM; and the turnpike-gate,

the fence belonging to which is faſtened at one end to this tree, takes its name from it; being called "Piffe's Elm 'Pike." The ſmalleſt girt of this tree, which falls about five feet high, is at preſent (1783) exactly ſixteen feet. At ten feet high it throws out large arms, which have formerly been lopped, but which now are furniſhed with tree-like ſhoots, riſing, by eſtimation, to ſeventy or eighty feet high, with an extent proportionable, exhibiting all together the grandeſt tree we have ſeen;—not ſo much from its preſent ſize, as from that fullneſs of growth and vigour which it now wears. There is an Elm of the Small-leaved ſort in Hyde Park whoſe ſtem is larger than this; but it is hollow, its head much impaired, and is a mere dotard compared with Piffe's Elm; which we mention the rather as it may be a tree in ages to come, and, ſtanding as it does in a well-ſoiled country, may ſwell out to twice its preſent ſize.

The leaves of this ſpecies of Elm have been already fully deſcribed; it remains only to obſerve, that notwithſtanding we are accuſtomed to ſee trees of this ſort trimmed up to mere maypoles, or at beſt with cloſe aſpiring heads, yet, if planted ſingly and ſuffered to form their own head, they will take an outline equal to that of the Beech or the Linden; and where an immediate object or ſkreen is wanted, the Elm has two material advantages: it may be removed when of a great ſize, and its growth is quicker than that of any other tree which is equally ornamental. The *uſes* of this ſpecies of Elm are ſimilar to thoſe of the Coarſe-leaved kind; and in places where bricks are rendered dear by a want of a proper ſupply of fuel, as in Surry and Kent, great quantities of this Elm are cut up for ſtuds and weather-boarding for the ſides of barns, ſtables, and even dwelling-houſes; and in the ſouthern counties in general it is much uſed in carpenter's work of all kinds as a ſubſtitute for Oak.

The propriety of planting the Elm depends entirely upon the ſoil: It is the height of folly to plant it upon light ſandy land. There is not, generally ſpeaking, a good Elm in the whole county of Norfolk. By the time they arrive at the ſize of a man's waiſt they begin to decay at the heart, and if not taken at the critical time, they preſently become uſeleſs as timber. This is the caſe in all light ſoils: it is in ſtiff ſtrong

land

land which the Elm delights. It is obſervable, however, that here it grows comparatively ſlow. In light land, eſpecially if it be rich, its growth is very rapid; but its wood is light, porous, and of little value, compared with that grown upon ſtrong land; which is of a cloſer ſtronger texture, and, at the heart, will have the colour and almoſt the heavineſs and the hardneſs of iron: On ſuch ſoils the Elm becomes profitable, and is one of the four *Cardinal Trees* which ought in preference to all others to engage the Planter's attention.

The method of PROPAGATING this ſpecies of Elm is principally by layering (in the manner already deſcribed); the ſeeds not coming to perfection here. HANBURY recommends in very ſtrong terms the grafting what he calls the True Engliſh Elm upon the Wych Elm; which he ſays has a ſtronger and more porous root, and will thrive upon poorer land. His reaſoning, however, ſeems to flow from a theory perhaps ill grounded, rather than from practice. Nevertheleſs, as he ſeems to have taken particular pains in drawing up directions for this operation, we will, for reaſons already aſſigned, tranſcribe them at length. "The ſtocks for the purpoſe ſhould be the Broad-leaved Wych Elm, which muſt be raiſed from the ſeed, and planted out as before. When they have grown two years in the nurſery, they will be of proper ſize to receive the graft; and the laſt week in January is the beſt time for the work. If a large quantity of Elm ſtocks are to be grafted, procure ſix men in readineſs for the purpoſe. The buſineſs of the firſt man is to take the mould from the ſtem of the ſtocks, with a ſpade, down to the root, laying the top of the root bare; the next man is to follow him with a ſharp pruning-knife, cutting off the heads of the ſtocks, and leaving the ſtumps to be grafted only about two inches above the root; the third man is the grafter himſelf, who having his grafts cut about four or five inches in length, all of the young wood, and ſuch as has never bore lateral branches, in a diſh, takes out one of them, and holding it in his left hand, the taper end being from him, with the knife that is in his right he takes off a ſlope about an inch and half or two inches long; and if the grafter be an artiſt, it will be cut as true as if wrought by a plane. This done, he makes a ſmall cut acroſs,

nearly at the top of the ſlope, and then proceeds to prepare the ſtock to receive it, which is effected by ſloping off a ſide of it, of the ſame length with the ſloped graft, that the parts may fit as near as poſſible. He then makes a cut nearly at the top of the ſtock downward, to receive the tongue he had made in the graft; and having properly joined them, he proceeds to the next. After the grafter, follows a perſon with baſs matting, cut into proper lengths; and with theſe he ties the grafts pretty cloſe to the ſtock. The fifth man brings the clay, which ſhould have been prepared a week or longer before, and well worked and beaten over, mixed with a fourth part of horſe-dung, and ſome chopped hay, in order to make it hang the better together: with this he ſurrounds the graft and the ſtock. Laſtly, the ſixth man comes and cloſes the clay, ſo that there may be no probability of its being waſhed off. Two or three rows being grafted, let an additional hand or two be employed, either in drawing the earth up above the clay, ſo that it may be wholly covered, or digging the ground between the rows, and levelling it ſo that nothing of the performed work may appear, except the tops of the grafts, above ground. The danger of froſt renders this precaution highly neceſſary; for if it ſhould be delayed a night or two, and ſharp froſts ſhould happen, the clay will moſt of it fall off, and thus the work will require to be repeated; whereas, when it is lapped warm in the manner directed, there will be no danger of ſuch an accident. A good workman, with the above-mentioned neceſſary aſſiſtance, will graft about fifteen hundred ſtocks in a day. In the ſpring, the buds will ſwell, diſcloſe, and ſhoot forth nearly as ſoon as thoſe of the tree from which they were taken. By the latter end of June, they will be ſhot a foot and half, when they ſhould be freed from the clay; the matting ſhould be alſo taken off, and themſelves left to ſport at eaſe with all the vegetative powers. At this time, of thoſe which have put forth two ſhoots, the weakeſt ſhould be taken up, to ſtrengthen the other, and to lighten the head, which would otherwiſe be ſubject to be broken off by high winds. By autumn the ſhoot will have grown about a yard in length; and in the winter dig the ground between the rows. In this place they may remain till they are of a ſize to be planted out for

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continuance, with no other trouble than what was directed for the layers; namely, keeping them clear of weeds, digging between the rows in the winter; at the ſame time taking off all very large ſide-branches; and in the ſummer pinching off ſuch young ſhoots, in the head, as may have a tendency to make the tree become forked. This practice of grafting will be found a valuable improvement of the Engliſh Elm, if we conſider the nature of the Wych Elm, on which it is grafted. Firſt, the Wych Elm will not only grow to the largeſt ſize of all the ſorts, but will grow the faſteſt. However, this is not to be wondered at, if we examine the root, which we ſhall find more fibrous, and the pores larger and in greater numbers than in any of the other Elms. Now, as all roots are of a ſpongy nature, to receive the juices of the earth for the nouriſhment and growth of the tree, that tree muſt neceſſarily grow the faſteſt whoſe root is moſt ſpongy and porous; and therefore the true Engliſh Elm, being ſet upon the root of the Wych, a greater quantity of nutriment is received from the earth for its encreaſe, in proportion as the root of the Wych Elm is more ſpongy and porous than that of its own ſort. Thus the Engliſh Elm, on this baſis, will arrive at timber many years ſooner than thoſe raiſed by layers, and be alſo forced to a greater ſize. If we conſider too that the roots of the Wych Elm will imbibe ſuch juices as are proper for the growth of its own ſorts, timber thus raiſed muſt be better, as the wood of the Wych Elm is ſo excellent in its kind as to anſwer the purpoſes of all the other kinds."

See more of the ELM under WOODLAND.

ZANTHOXYLUM.

LINNEAN Claſs and ORDER, *Diœcia Pentandria:* Male flowers containing five parts, and female flowers containing one part; upon diſtinct plants. There are two SPECIES: one of which, with due care, may be enured to this climate.

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ZANTHOXYLUM *Clava Herculis:* The TOOTHACHE-TREE; *a deciduous ſhrub*; native of Jamaica, Carolina, and Pennſylvania.

The TOOTHACHE-TREE (ſo called from its bark being ſaid to be efficacious in that complaint) will grow to the height of about twelve feet. The bark is rough, and armed with ſhort thick ſpines. The leaves are its greateſt ornament; for they are pinnated, are of a fine dark-green on their upper ſurface, and yellowiſh underneath, and grow without order on the branches. The folioles are ſpear-ſhaped, long; four or five pair are terminated by an odd one, and the whole leaf has much the reſemblance of thoſe of the Maſtich tree. The flowers come out in looſe panicles, from the ends of the branches; they are ſmall, and of little figure, having no petals, though the coloured ſegments of the calyx have been taken for petals. They are ſucceeded by roundiſh capſules, containing the ſeeds, which hardly ever ripen in England.

There is a *varicty* of this genus, with leaves compoſed of oval, oblong folioles, which have prickly mid-ribs. This difference is permanent from ſeeds. They are numbered in the nurſeries as two diſtinct ſorts; the firſt is called the Lentiſcus-leaved Toothache-tree; the other the Aſh-leaved Toothache-tree.

Theſe trees are PROPAGATED from the ſeeds, which we receive from abroad; and theſe are ſeldom leſs than two, and often three or four, years before they come up. They muſt be ſown deep, in largiſh pots, filled with a good, light, ſandy compoſt; and after that, the pots may be plunged into ſome natural ſoil, in a ſhady place, and there left undiſturbed, except having conſtant weeding, during the next ſummer and winter. The ſpring following they may be taken up and plunged into an hotbed; and this will bring up many of the ſeeds. They muſt be next hardened by degrees; and afterwards plunged into their former ſtation, to remain there until autumn. In the enſuing winter they muſt be preſerved in the greenhouſe, or under a hotbed-frame; and in the ſpring they ſhould have a hotbed as before; and then you may expect to ſee the remainder of the whole crop. The ſame management muſt be repeated until the ſpring following, when

they

they muſt be all ſhaken out of the pots, and each be planted in a ſeparate pot. Watering ſhould be given them, to ſettle the mould to the roots; and they ſhould be plunged into a hotbed as before. After this they muſt be hardened to the air, and ſet abroad in a ſhady place. The plants are now raiſed; but they ſhould be treated as greenhouſe-plants for two or three years after; when, in ſome ſpring, they may be turned out of their pots, with their mould, into the places where they are deſigned to remain. The places allotted them ſhould be naturally warm and well-ſheltered; for although they are tolerably hardy when old, they require protection at firſt; and with this, nothing but the ſevereſt winters can deſtroy them.

TIMBER.

TIMBER.

TIMBER is the great and primary object of planting. Ornament, abſtracted from utility, ought to be confined within narrow limits. Indeed, in matters of planting, eſpecially in the taller plantations, it were difficult to ſeparate entirely the idea of ornament from that of uſe. Trees in general are capable of producing an ornamental effect; and there is no tree which may not be ſaid to be more or leſs uſeful. But their difference in point of value when arrived at maturity is incomparable; and it would be the height of folly to plant a tree whoſe characteriſtic is principally ornamental, when another which is more uſeful and equally ornamental may be planted in its ſtead.

Therefore, previous to our entering at large upon the buſineſs of planting, it will be proper to endeavour to ſpecify the trees moſt uſeful to be planted. In attempting this we muſt look forward, and endeavour to aſcertain the ſpecies and proportional quantities of TIMBER which will hereafter be wanted, when the trees now to be planted ſhall have reached maturity. To do this with a degree of certainty is impoſſible: Cuſtoms and faſhions alter as caprice and neceſſity dictate. All that appears capable of being done in a matter of this nature is, to trace the great outlines, and, by obſerv-

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ing what has been permanently uſeful for ages paſt, judge what may, in all human probability, be alſo uſeful in ages to come.

SHIPS, MACHINES, and
BUILDINGS, UTENSILS,

have been, are, and moſt probably will continue to be, the conſumers of TIMBER in this country. We will therefore endeavour to come at the principal materials made uſe of in the conſtruction of theſe four great conveniencies of life. Indeed, whilſt mankind remain in their preſent ſtate of civilization and refinement, they are *neceſſaries* of life which cannot be diſpenſed with; and are conſequently objects which the planter ought not to loſe ſight of, as they include in effect every thing that renders plantations uſeful; FENCE-WOOD and FUEL excepted.

SHIPS are built chiefly of OAK: the keels, however, are now pretty generally laid with ELM; and part of the upper deck of men of war is of DEAL: But theſe woods bear no proportion, in reſpect of the quantity uſed, to the Oak. The *timbers* of a ſhip are principally crooked, but the *planking* is cut out of ſtraight pieces. In a ſeventy-four gun ſhip, the crooked and ſtraight pieces uſed are nearly equal, but the *planking under water* is of FOREIGN OAK: therefore, of ENGLISH OAK, the proportion of crooked to ſtraight pieces is almoſt two to one. Maſts and yards are of DEAL. The blockmakers uſe Lignum Vitæ, Box, and other hard woods. Upon the whole, it may be ſaid, that in the conſtruction of a ſhip, OAK is the only ENGLISH WOOD made uſe of; and that of this Engliſh Oak,

nearly

nearly two-thirds is requiſite to be more or leſs CROOKED.

BUILDINGS. In the metropolis, and towns in general, DEAL is the prevailing wood made uſe of by the *houſe-carpenter:* ſome OAK is uſed for ſaſhes, alſo for window and door-frames, and ſome for wall-plates; but in places ſituated within the reach of water-carriage, DEAL is becoming every day more and more prevalent: Nevertheleſs, there are many inland parts of the country where the houſe-carpenters ſtill continue to work up great quantities of OAK and ELM. The *joiner* and the *carver* ſcarcely uſe any other wood than DEAL, except in ſome inland and well-wooded diſtricts, where OAK is ſtill in uſe for floors and ſtair-caſes. Through the kingdom at large, perhaps three-fourths of the timber uſed in the conſtruction of buildings is FOREIGN DEAL.

MACHINES. This claſs comprehends MILLS and other MACHINES OF MANUFACTORY, CARRIAGES of burden and pleaſure, IMPLEMENTS OF HUSBRANDRY, with the other articles neceſſary in rural affairs.

The *mill-wright*'s chief material is OAK (As to the implements, utenſils, and machines of manufactory, they are infinite, and various kinds of wood are worked up in making them).

The *waggon and cart-wright* uſes OAK for bodies, ASH for ſhafts and axles, ELM for naves, and ſometimes for fellies and linings.

The *plow-wright's* ſheet anchor is ASH: in ſome counties BEECH is ſubſtituted in its ſtead, for every thing but plow-beams.

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The *coachmakers* uſe ASH for poles, blocks, ſplinter-bars, &c. ELM for naves; generally ASH for ſpokes and fellies; and RATTAN * for pannels.

Gates and Fences are made of OAK and DEAL; ſometimes of ASH, ELM, MAPLE, &c. but *poſts* are, or ought to be, univerſally of OAK.

Ladders, of DEAL, OAK, &c.

Pumps and Water-Pipes, of OAK, ELM, ALDER.

Wooden Bridges, *River Breaks*, and other *Water-works*, principally OAK; ſome ELM and ALDER under water.

UTENSILS. Under this head we claſs FURNITURE, COOPER'S WARE, MATHEMATICAL INSTRUMENTS, TRUNKS, PACKING-CASES, COFFINS, &c. &c.

The *cabinet-makers'* chief woods are MAHOGANY and BEECH; next to theſe follow DUTCH OAK (Wainſcot), DEAL, ELM; and laſtly WALNUT-TREE, CHERRY-TREE, PLUM-TREE, BOX, HOLLY, YEW, and a variety of woods for inlaying and cabinets. In ſome country places a conſiderable quantity of ENGLISH OAK is worked up into tables, chairs, drawers, and bedſteads; but in London, BEECH is almoſt the only Engliſh wood made uſe of *at preſent* by the cabinet and chair-makers.

Coopers;—OAK (and ſome CHESNUT) for large caſks and veſſels: ASH for dairy utenſils, butter-firkins, flour-barrels, &c. OAK for well-buckets and water-pails, and in ſome places for milk-

* The Mahogany of the Bahama-Iſlands.

pails

pails and other dairy veſſels: BEECH for ſoap firkins, &c.

Turners;—principally BEECH for large ware, if Beech is to be had; if not, SYCAMORE, or other clean-grained wood: BOX, HOLLY, &c. for ſmaller utenſils.

Mathematical inſtrument-makers;—MAHOGANY, BOX, HOLLY.

Trunk-makers;—DEAL.

Packing-caſes;—alſo DEAL.

Coffins;—OAK, ELM, DEAL.

And finally, the *laſt-makers*, who work up no inconſiderable quantity of wood, uſe BEECH for laſts; ALDER and BIRCH for heels, patten-woods, &c.

We do not deliver the foregoing ſketch as a perfectly correct account of the application of woods in this country: The attempt is new, and that which is new is difficult. We have not omitted to conſult with profeſſional men upon the ſubject; and we believe it to be ſufficiently accurate for the purpoſe of the planter. If we have committed any material error, we aſk to be ſet right. We do not wiſh to deſcend to minutiæ: it would be of little ſignification to the planter, to be told what toys and toothpicks are made from: it is of much more importance to him to know, that, of ENGLISH WOODS, the OAK is moſt in demand, perhaps three to one,—perhaps in a much greater proportion; that the ASH, the ELM, the BEECH, and the BOX, follow next; and that the CHESNUT, the WALNUT, and the PRUNUS and PINUS tribes are principally

valuable as ſubſtitutes for OAK and FOREIGN TIMBER. It likewiſe may not be improper in this place to mention, that the OAK, though of ſlower growth than the Aſh, the Elm, the Beech, the Larch, the Firs, and the Aquatics, is nearly of twice the value of any of theſe woods at market; therefore, in a private and pecuniary point of view, the OAK is the moſt eligible tree to be planted: in a public light, it riſes above compariſon.

HEDGES.

HEDGES.

THE raiſing of LIVE HEDGES and HEDGE-ROW TIMBER conſtitutes no inconſiderable part of the buſineſs of planting. The value of good Hedges is known to every huſbandman; and notwithſtanding the complaints againſt Hedge-row Timber as being liable to be knotty, &c. the *quality* of the timber itſelf is not queſtioned: its faultineſs ariſes wholly from an improper treatment of the tree, and not from the ſituation of its growth. Indeed, we are clear in our opinion, that, under proper management, no ſituation whatever is better adapted to the valuable purpoſe of raiſing SHIP-TIMBER than Hedges: The roots have free range in the adjoining incloſures, and the top is expoſed to the exerciſe of the winds, with a ſufficient ſpace to throw out luſty arms, and form, at a proper height, a ſpreading head. Thus quickneſs of growth, with ſtrength and CROOKEDNESS of Timber, are at once obtained.

We are well aware of the injury reſulting from woody Hedge-rows to arable incloſures; but every man experienced in rural matters muſt be convinced that it is not well-trained Timber-trees, but high Hedges and low Pollards, which are the bane of corn-fields. Theſe, forming a high and impervious barrier, preclude the air and exerciſe ſo eſſential to the vegetable, as well as the animal, creation:

in Norfolk, lands thus encumbered are, with great ſtrength and propriety of expreſſion, ſaid to be *wood-bound*. Beſides, Pollards and low-ſpreading trees are certain deſtruction to the Hedge-wood which grows under them.

Neither of theſe evils, however, reſult from tall Timber-oaks, and a Hedge trimmed down to four or five feet high: a circulation of air is, in this caſe, rather promoted than retarded; and it is well known that a *trimmed* Hedge will thrive perfectly well under tall ſtemmed trees, Oaks more eſpecially. We will therefore venture to recommend, for arable incloſures, Hedges trimmed to four or five feet high, with Oak timbers of fifteen to twenty-five feet ſtem.

But for graſs lands, higher Hedges are more eligible. The graſſes affect warmth, which promotes their growth, and thereby increaſes their quantity, though their quality may be injured. Beſides, a tall fence affords ſhelter to cattle, provided it be thick and cloſe at the bottom; otherwiſe, by admitting the air in currents, the blaſt is rendered ſtill more piercing. The ſhade of trees is equally friendly to cattle in ſummer, as thick Hedges are in the colder months; therefore, in the Hedges of graſs incloſures, we wiſh to ſee the Oak wave its lofty ſpreading head, whilſt the Hedge itſelf is permitted to make its natural ſhoots: remembering, however, that the oftener it is cut down the more durable it will be as a fence, and the better ſhelter it will give to cattle; more eſpecially if the ſides be trimmed the firſt and ſecond

years

years after cutting, in order to give it an upright tendency, and thicken it at the bottom.

Upon bleak hills, and in expoſed ſituations, it is well to have two or even three rows of Hedge-wood, about four feet apart from each other; the middle row being permitted to reach, and always remain at, its natural height; whilſt the ſide-rows are cut down alternately to give perpetual ſecurity to the bottom, and afford a conſtant ſupply of materials for Dead-hedges and other purpoſes of Underwood.

Having thus given a general ſketch of our ideas as to the different kinds of Hedges moſt eligible to be raiſed, we proceed to treat of the method of raiſing them. In doing this it will be proper to conſider,

1. The woods moſt eligible for Hedges.
2. The time and manner of planting them.
3. The manner of defending the young plants.
4. The method of cleaning and training them.
5. The after-management.

1. The SPECIES OF HEDGE-WOOD depends in ſome meaſure upon ſoil and ſituation. That which is proper for a ſound ſoil in a temperate ſituation, may not be eligible for a marſh or a mountain: and indeed a fence may be formed of any tree or ſtrong ſhrub, provided it will thrive in the given ſituation. Nevertheleſs, there are ſome ſpecies much more eligible than others; we particularize the following:

The Hawthorn.
The Crab-Tree.
The Aquatic Tribe.

The Holly.
The Furze.

The *Hawthorn* has been conſidered, during time immemorial, as the wood moſt proper for live fences. This pre-eminence probably aroſe from the ſeedling-plants being readily collected in woods and waſtes; the method of raiſing them in ſeed-beds being formerly, and indeed in ſome parts of the kingdom even to this day, but little practiſed. The longevity of the Hawthorn, eſpecially if it be frequently cropped, and its patience in cropping; its natural good qualities as a live fence, and its uſefulneſs as affording materials for dead hedges, are other reaſons why it has been univerſally adopted. Another advantage of the Hawthorn—It will grow in almoſt any ſoil, provided the ſituation be tolerably dry and warm. However, if the ſoil hath not a degree of richneſs in itſelf, as well as a geniality of ſituation, the Hawthorn will not thrive ſufficiently, nor make a progreſs rapid enough, to recommend it, in preference, as a hedge-wood.

The *Crab-tree*, amongſt the deciduous tribe, ſtands next: indeed, taken all in all, it may be ſaid to rival, if not to exceed, the Hawthorn itſelf. Its growth is conſiderably quicker, and it will thrive in poorer ſoils and in bleaker ſituations; and altho' it may not be ſo thorny and full of branches as the Hawthorn, yet it grows ſufficiently rugged to make an admirable fence. Add to this, tho' its branches may not be preferable to thoſe of the Hawthorn for *ſhooting* dead-hedges, they undoubtedly afford a much greater quantity of *ſtakes*; and no wood

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whatever (the Yew perhaps only excepted) affords better ſtakes than the Crab-tree. The ſeedling plants too are readily raiſed, as the ſeeds of the Crab vegetate the firſt year. We do not mean, however, to force down the Crab-tree upon our Reader as being, in a general light, preferable to the Hawthorn: we wiſh only to ſtate, impartially, their comparative value; leaving him to conſult his own ſituation and conveniency, and, having ſo done, to judge for himſelf. Nevertheleſs, from what has been adduced, we may venture to conclude, that upon a barren ſoil, and in a bleak ſituation, the Crab-tree, as a hedge-wood, claims a preference to the Hawthorn.

The *Aquatics*. As the Crab excels the Hawthorn upon bleak barren hills, ſo the Aquatics gain a preference in low ſwampy grounds: for altho' the Hawthorn delights in a moiſt ſituation, yet much ſtagnant water about its roots is offenſive to it. Of the Aquatics, the *Alder* ſeems to claim a preference; its growth is more forked and ſhrubby than that of the Poplar or Willow; and its leaves are particularly unſavory to cattle. In point of ornament, however, it is exceeded by the *Black Poplar*, which, if kept trimmed, will feather to the ground, and form a cloſe and tolerably good fence.

The *Holly*. Much has been ſaid, and much has been written, of the excellency of Holly-hedges: nevertheleſs, as fences to farm-incloſures, they ſtill exiſt in books and theory only; not having yet been introduced into general practice, we be-

lieve, in any part of the kingdom. Their ſuperiority, however, whether in point of utility or ornament, is univerſally acknowledged. The perpetual verdure they exhibit, the ſuperior kind of ſhelter they afford during the winter months, and the everlaſtingneſs of their duration (an old decayed Holly being an object rarely to be ſeen in nature), all unite in eſtabliſhing their excellency. How then are we to account for the ſcarcity of Holly-hedges? The difficulty of raiſing them and the ſlowneſs of their growth have been held out as obſtacles; and ſuch they are, in truth; but they are obſtacles ariſing rather from a want of proper management, than from any cauſe inherent in the Holly itſelf. Thouſands of young Hollies have been deſtroyed by being planted out improperly in the ſpring, at the time that the Hawthorn is uſually planted: and the few which eſcape total deſtruction by ſuch injudicious removal, receive a check which cripples their growth, probably for ſeveral years.

We do not mean to intimate, that, by any treatment whatever, the progreſs of the Holly can be made to keep pace with that of the Hawthorn, or Crab: and we are of opinion that it ought, by reaſon of the comparative ſlowneſs of its growth, to be raiſed *under* one or other of theſe two plants; more eſpecially under the Crab, which, as has been obſerved, has a more upright tendency than the Hawthorn, and conſequently will afford more air, as well as more room to the Holly riſing under it.

But

But whilſt we thus venture to recommend raiſing the Holly under the Crab, we are by no means of opinion that it is difficult to raiſe a hedge of Holly alone. The principal diſadvantage ariſing comparatively from this practice is, that the dead fence will be required to be kept up at leaſt ten or twelve years inſtead of ſix or ſeven; in which time a Crab-tree hedge, properly managed, may be made a fence, and will remain ſo without further expence until the Holly become impregnable; when the Crab may either be removed, or permitted to remain, as taſte, profit, or conveniency may point out.

The Holly will thrive upon almoſt any ſoil; but thin-ſoiled ſtony heights ſeem to be its natural ſituation. We may venture to ſay, that where corn will grow, Holly will thrive abundantly; and Holly hedges ſeem to be peculiarly well adapted to an arable country: for, being of ſlow growth, and its perſpiration being comparatively ſmall, the Holly does not *ſuck the land* (as the Countryman's phraſe is), and thereby rob the adjoining corn of its nouriſhment, ſo much as the Hawthorn; which, if ſuffered to run up to that unpardonable height, and to ſtruggle abroad to that ſhameful width at which we frequently ſee it, is not much leſs pernicious in its effects upon corn-land than the Aſh itſelf.

The *Furze* is rather an aſſiſtant Hedge-wood than a ſhrub, which alone will make a fence. Upon light barren land, however, where no other wood will grow to advantage, tolerable fences may be made with Furze alone.

There

There is one material diſadvantage of Furze as a live Hedge-wood; the branches are liable to be killed by ſevere froſts, eſpecially if the plants be ſuffered to grow tall, branchy, and thin at the bottom. It follows, that the beſt preſervative againſt this malady is to keep them cut or trimmed down low and buſhy; indeed, they are of little uſe as a fence, unleſs they be kept in that ſtate.

In Norfolk it is a practice, which of late years has become almoſt univerſal, to ſow Furze-ſeed upon the top of the ditch-bank; eſpecially when a new Hedge is planted. In a few years the Furzes get up, and become a ſhelter and defence to the young quick; and, aſſiſted by the high ditch-bank prevalent in that country, afford a comfortable ſhelter to cattle in winter; beſides ſupplying, at every fall, a conſiderable quantity of Farm-houſe fuel.

2. The METHOD AND TIME OF PLANTING HEDGES come next under conſideration. The method varies with the ſoil, and the time with the ſpecies of wood to be planted.

In a low level country, ditches become uſeful as main-drains to the adjoining incloſures; but in a dry upland ſituation, drains are leſs wanted; and here the Planter has it in choice whether he will plant with or without a ditch.

The prevailing cuſtom, taking the kingdom throughout, is to plant with a ſhallow ditch, laying the plants in a leaning poſture againſt the firſt ſpit turned upſide-down, covering their roots with the beſt

beſt of the cultivated mould, and raiſing a bank over them with the remainder of the excavated earth of the ditch, without any regard being had to the wetneſs or dryneſs of the ſituation. It is a ſtriking fact, indeed, that in the vale of Glouceſter—where large plots of naturally rich land are chilled with ſurface water, and reduced to little value entirely thro' a want of proper ſewers and ditches—it is the cuſtom to plant Hedges with a paltry grip of twelve to fifteen inches deep; whilſt in Norfolk—a dry ſandy country, where the natural abſorbency of the ſub-ſtratum is ſeldom or ever ſatiated—it is the univerſal practice to raiſe Hedges with what is there called a "Six-foot Dyke;" and when freſh-made, they frequently run from ſix and a half to ſeven feet; meaſuring from the bottom of the ditch to the top of the bank.

What may appear equally extraordinary to the reſt of the kingdom, the Norfolk Huſbandmen, inſtead of planting the quick at the foot of the bank among the corn mould, lay it in, near the top of their wall-like bank, amongſt the crude earth taken out of the lower part of the ditch. It is no uncommon ſight, however, in that country, to ſee the face of the bank, which is uſually built very upright, waſhed down, quick and all, by beating rains, for rods together, into the bottom of the ditch. Nevertheleſs, if the plants eſcape this accident, it is aſtoniſhing to ſee the progreſs they will ſometimes make for a few firſt years after planting. But, as the roots enlarge, they become confined for want of room to range in; and the

bank

bank naturally mouldering down by time, they are left naked and expoſed. It is common to ſee fine young plants hanging with their heads downward againſt the face of the bank; and the mould continuing to crumble away from their roots, they at length of courſe drop ſingly into the ditch.

If we examine the unbroken flouriſhing Hedges of that country, of fifteen, twenty, and thirty years ſtanding (for many ſuch there are, eſpecially in the fleg hundreds); we ſhall find them firmly rooted amongſt the corn-mould at the foot of the bank. Nevertheleſs, the Norfolk farmers in general are ſo cloſely wedded to the foregoing practice, that no arguments are ſufficient to convince them of its impropriety.

We confeſs ourſelves partial to the ſuperior abilities of the Norfolk Huſbandmen, in their general management of rural affairs; and we hold eſtabliſhed practices in Huſbandry as things too reſpectable to be wholly condemned without a full and candid examination: we will therefore endeavour, in as few words as poſſible, to place the Norfolk practice of planting Hedges in its proper light.

There are not, generally ſpeaking, any woodlands in Norfolk. The Hedges, it is true, eſpecially of the eaſtern part of the county, are full, much too full, of wood, chiefly Pollards. There are ſome few Timber-groves ſcattered here and there: but we find none of thoſe extenſive tracts of Coppice or underwood in that county which we ſee in other parts of the kingdom: conſequently, the planter of Hedges experiences a ſcarcity of materials for temporary

porary dead fences, having neither *ſtakes*, *edders*, nor *rails*, to make them with. Fortunately for him, however, the *ſoil* is of ſuch a nature (a light ſandy loam of great depth, without a ſingle ſtone to check the ſpade), that by digging a deep trench, and raiſing a mound with the ſoil, none of thoſe materials are wanted. The face of the bank being carried upright, and a little bruſh-wood ſet along the top of it, a ſufficient fence is formed; whilſt the depth of the ditch prevents the cattle from browzing upon the young plants. By this means Hedges are raiſed in Norfolk at a trifling expence, compared with the great coſt beſtowed upon them in ſome counties, where two rows of poſts and rails are uſed by way of temporary fences. But the difficulty in raiſing a Live-hedge in the Norfolk manner, ariſes from the want of a proper place to plant the Quick in. If it be put in towards the top of the bank, as is uſually done, the evil conſequences above-mentioned follow: if, on the contrary, it be laid in near the bottom, the ſuperincumbent preſſure of the bank, and the want of moiſture in this part of it, render the progreſs of the young plants ſlow for the firſt three or four years; whilſt thoſe above, having looſe *made ground* for their fibres to ſtrike amongſt, and having a ſufficient ſupply of moiſture collected from every ſhower by the Bruſh-hedge, flouriſh apace; until the roots having grown too large for the bank, or the upper part of the bank itſelf having been waſhed down or mouldered away, their career is ſtopt, at a time when thoſe below, having ſtruggled thro' the bank, and finding an ample ſupply of air, moiſture, and rich cultivated ſoil, to work amongſt, are

in

in their turn beginning to thrive; whilſt their main roots being firmly fixed in the ſoil itſelf, there is no fear of their afterwards receiving a check.

Thus it appears that the Norfolk method has its advantage as being cheap, with its diſadvantages ariſing from the want of a proper place to put the plants in.

This is eaſily obviated by planting with an OFFSET; that is—inſtead of continuing the face of the bank with one unbroken ſlope—to ſet it back a few inches, ſo as to form a break or ſhelf, where the Quick is planted; for the obvious purpoſe of giving the young plants a ſufficient ſupply of moiſture, air, and paſturage, until their roots have had time to extend themſelves to the adjoining incloſures.

This method of raiſing a Hedge is not a mere theoretical deduction, but has been practiſed with ſucceſs in different parts of the kingdom; and, in a ſoil free from ſtones and other obſtructions of the ſpade, it is perhaps upon the whole the moſt eligible practice.

But the beſt Live-hedges we remember to have ſeen in any part of this kingdom, grow in the neighbourhood of Pickering, in the North Riding of Yorkſhire. Theſe Hedges ſtand nearly upon level ground, with little or no bank or ditch; ſo that the plants have free range for paſturage on both ſides; the ſhallow trenches by which the Quick has been planted being now grown up; having, it is probable, never been ſcoured out ſince they were made. Indeed, the aſſiſtance of a ditch is not wanted, no temporary

temporary fence whatever being requiſite to be made when the Hedge is topped: the ſtems themſelves are a ſufficient barrier, ſtanding in rows like the heads of piles, and in ſuch cloſe order that not a ſheep nor a hog, nor, in ſome places, even a hare, can creep between them. In a few years thoſe living piles throw out heads aſtoniſhingly luxuriant, and every ſix or ſeven years afford an ample and profitable crop of Bruſh-wood; and this without any expence whatever except that of reaping it: whereas in Norfolk the renewal of the ditch and bank, when the Hedge is cut down, is nearly equal to the firſt coſt; beſides the diſadvantage reſulting from cutting off all communication with the incloſure on the ditch ſide, and thereby robbing the Hedge of half its natural food.

Therefore, where a ditch is not neceſſary as a drain, and where the nature of the ſubſtratum is ſuch that it cannot be conveniently ſunk ſufficiently deep to defend the young plants—the moſt eligible method, in ſuch a ſituation, is to plant the Hedge upon the LEVEL GROUND, without either bank or ditch, in the manner hereafter deſcribed; which method is now practiſed in the neighbourhood abovementioned with very promiſing ſucceſs.

Having thus endeavoured to deduce from actual practice what may be called the *theory* of raiſing Hedges, we proceed to the application.

From what has been ſaid, it appears that there are three diſtinct methods of raiſing a Live-hedge:

1. With

1. With a ditch and plain bank.
2. With a ditch and offset.
3. Upon level ground.

The firſt has been already mentioned; and being familiar to every countryman, it is needleſs to enlarge upon it here.

The ſecond is to be practiſed in wet ſituations where ſurface-drains are wanted, and when the ditch is neceſſary to be kept open; and likewiſe in dry ſituations, where the ſubſoil is ſuch that a ditch can be conveniently ſunk deep enough to guard the young plants in front without an additional fence.

The manner of executing it is this: The ground may either be prepared by fallowing with the plow, or the work may be lined out upon the unbroken ground. In either caſe the plants ſhould be ſet *upon* the natural level of the ſoil, and at the diſtance of three to twelve inches from the brink of the ditch. This, in ordinary ſituations, ſhould be about four feet, ſay a quarter of a rod, wide at the top, and being brought to an angle at the bottom (or as near an angle as tools can bring it), its ſlope or ſides ſhould be about the ſame dimenſions; the cavity of the ditch being made as nearly as may be an equilateral triangle. But if the ditch be wanted as a main-drain or common-ſewer, its width ſhould be conſiderably greater; for in this caſe it cannot be *pointed* at the bottom, and muſt therefore have a ſufficient width given it at the top to admit of its being made deep enough as a fence, and at the ſame time wide enough at the bottom to admit the given current of water. The bank ſhould riſe in front, with

with a ſlope ſimilar to that of the ditch; but, as the back ſhould be carried more upright at the foot, ſwelling out full towards the top, in order to admit the inſertion of a Bruſh-hedge; or rather, if it can be conveniently had, a Dwarf Stake-and-Edder Hedge, which will effectually compleat the fence to the bank ſide; in either caſe, if any ſtraggling ſpray overhang the young plants, it ſhould be trimmed off with ſome ſharp inſtrument, or be beaten flat with the back of a ſhovel, to prevent its drip from injuring the tender ſhoots.

The third method, namely, planting without a ditch, is more particularly recommended for upland ſhallow ſtony ſoils. In executing this, the ground muſt be previouſly marked out, from four to ſix feet wide, be reduced to a fine tilth, and made perfectly clean, either by a whole ſummer's fallow repeatedly ſtirred with the plow, or by cultivating upon it, in a huſband-like manner, a crop of Turnips, or, which is perhaps better, a crop of Potatoes, eſpecially if a little dung can be conveniently allowed them. At the approach of winter, the ſoil being fine and clean, and the crop, if any, off, gather it up into a highiſh round ridge or land, and thus let it lie till the time of planting; when, opening a trench upon the ridge or middle of the land, either with the ſpade or the plow, inſert the plants upright, filling in the mould, and preſſing it gently to the roots in the common nurſery manner.

The ſame precautions ſhould be obſerved in planting of Quick, which have been already recommended under the article TRAINING UP; namely, the

plants ſhould be ſorted as to their ſize, and ſhould be either cut off within a few inches of the ground, or be trimmed up to ſingle ſtems.

The *diſtance* ſhould be regulated by the age and ſtrength of the plants; from four to ſix inches is the uſual diſtance; but if the plants have been previouſly tranſplanted from the ſeed-bed, as they ought ever to be, and have acquired four or five years of age and ſtrength, as we would always wiſh they ſhould, from ſix to nine inches is near enough.

The uſual *time of planting* is during the ſpring months of February, March, and April; and for the Hawthorn, the Crab, and the Aquatics, this is at leaſt the moſt convenient ſeaſon; but for the HOLLY, as has been already obſerved under that article, Midſummer is the propereſt time of planting.

Where much *ditching* is required, and hands ſcarce, the foundations of the banks may be laid any time in winter, and left to ſettle until the time of planting.

Thus far we have been ſpeaking of raiſing SINGLE HEDGES, whether of Hawthorn, Crab-tree or Holly; we will now ſay a word or two as to the method of raiſing the HOLLY UNDER THE CRAB or Hawthorn. This may be done two ways; either by ſowing the berries when the Quick is planted; or by inſerting the plants themſelves the enſuing Midſummer. The firſt is by much the ſimpleſt, and perhaps upon the whole, the beſt method. The ſeeds may either be ſcattered among the roots of the deciduous plants, or be ſown in a drill in front of them: and if plants of Holly be put in, they may either be planted between

tween thoſe of the Crab, &c. or otherwiſe in front, in the Quincunx manner; the tablet of the offset, when a ditch is made uſe of, being left broad for that purpoſe.

If the FURZE be made uſe of as an aſſiſtant Hedge-wood, it is better to ſow the ſeed on the *back* of the bank than upon the *top* of it; for in this caſe it is more apt to overhang the young plants in the face of the bank; whilſt in the other it is better ſituated to anſwer the purpoſe intended; namely, guarding the back of the bank, as well as preventing its being torn down by cattle. The method of ſowing the ſeed is this: Chop a drill with a ſharp ſpade about two-thirds of the way up the back of the bank, making the cleft gape as wide as may be, ſo as not to break off the lip; and having the ſeed in a quart bottle, ſtopt with a cork and gooſe-quill, or with a perforated wooden ſtopper, trickle it along the drill; covering it by means of a broom drawn gently above, and over, the mouth of the drill. This is better than cloſing the drill entirely with the back of the ſpade, the ſeeds being ſufficiently covered without being ſhut up too cloſe, whilſt the mouth of the drill is left open to receive the rain-water which falls on the top of the bank. One pound of ſeed will ſow about forty ſtatute rods. The French ſeed is the beſt, as the plants from this ſeldom mature their ſeeds in this country, and conſequently are leſs liable to ſpread over the adjoining incloſure. It may be had at the ſeed-ſhops in London for about fifteen-pence a-pound.

If a fence be required of Furze alone, a ſimilar drill ſhould be ſown on the other ſide of the bank;

and when the plants are grown up, the ſides ſhould be cut alternately.

Thus much as to *planting* the FENCE; we now proceed to the method of planting HEDGE-ROW TIMBER. It has already been given in opinion, that no ſituation whatever is better adapted to the raiſing of ſhip-timber than Hedges; and we are clearly of opinion, that in theſe alone a ſufficient ſupply, of crooked timbers at leaſt, might be raiſed, to furniſh perpetually the Navy of Great Britain. It is a ſtriking fact, that in Norfolk, where there is very little Oak, except what grows in the Hedges, and even in theſe, for one timber-tree there are ten pollards, yet the country experiences no want of oak-timber.

But whilſt we recommend the Oak, as eligible to be planted in Hedges, we beg leave to condemn, as unfit for that purpoſe, every other tree whatever (except perhaps the Aquatics in a marſh, the Beech and Pine-tribe upon a barren mountain, or the Elm where Oak has lately occupied the ſoil) and, more eſpecially the Aſh; not only as being the greateſt enemy to the farmer, but becauſe the excellency of Aſh-timber ariſes from a length of ſtem, and cleanneſs of grain: groves, therefore, and not Hedges, are the natural ſituation of the Aſh; and, generally ſpeaking, of every other timber-tree, the Oak only excepted.

The

The method of raiſing the Oak in Hedges, may either be by ſowing the acorns, or planting the ſeedlings, at the time of planting the fence-wood: we would wiſh to recommend the practice of both; namely, to plant a well-rooted, thriving nurſery-plant (ſuch as have previouſly been tapped and tranſplanted) at the diſtance of every ſtatute rod; and, at the ſame time, to dibble round each plant three or four acorns, to guard againſt a miſcarriage, and to give the judicious woodman a choice in the propereſt plant to be trained.

This diſtance may be objected to, as being too cloſe; and ſo it may in a deciduous Hedge; but, in a Holly-Hedge, we would not wiſh to ſee Oaks ſtand at a greater diſtance; for, ſituated in a Hedge, they have unlimited room to ſpread on either ſide; and, by ſtanding near each other, they are more likely to throw out main-branches, fit for ſhip-timber, than they would if they had full head-room. For this reaſon, it might not be amiſs to plant at every half-rod, and, when the Hedge is perceived to begin to ſuffer, to thin them in the manner moſt conducive to the ends propoſed, holding jointly in view the Fence and the Timber.

3. The Method of Defending the Young Plants. Little more remains to be ſaid upon this head. The ditch, bank, and dwarf-hedge have already been fully deſcribed; and this is by much the cheapeſt, and a very effectual, method where it can

be conveniently practiſed; but where the nature of the ſoil is ſuch that a ditch ſufficiently deep to defend the young plants cannot be ſunk but at too great an expence, ſome other expedient muſt be ſought for.

Poſts and rails wound with buſhes in the Yorkſhire manner, are an effectual fence; but they are expenſive in the extreme.

In Surry and Kent, the prevailing practice is to ſet a ſtrong Stake-and-Edder-Hedge behind the Quick, and throw rough buſhes into a ſhallow ditch in front: this in a Coppice-wood country may be done at a reaſonable expence, but it is by no means effectual.

In ſome places Wattle-hedges are uſed, and in others Furze-faggots ſet in cloſe order are found effectual for this purpoſe: in ſhort, almoſt every country affords its own peculiar materials, and every judicious planter will endeavour to find out thoſe which are moſt eligible.

4. THE METHOD OF TRAINING. Much, very much indeed, depends upon this part of the buſineſs; nevertheleſs, it is the common idea of planters of Hedges every-where, that having performed the buſineſs of *planting*, and having *made* a fence ſufficient to guard the plants at the time of planting, *their* part is *finiſhed*; the reſt is of courſe left to nature and chance.

The repairing of the fence,

The cleaning, &c. of the plants, and the

Trimming or pruning them, are not however leſs neceſſary operations, than the planting and fencing; for without proper attention to thoſe, the expence beſtowed

beſtowed upon theſe is only ſo much thrown away. A ſingle gap, eſpecially where ſheep are to be fenced againſt, may cauſe to be undone in half an hour what has been doing for two or three years.

In this point of view a deep ditch-fence is preferable to one raiſed upon the ground, provided the ditch be kept *pointed*; for without this precaution, a ditch, unleſs it be very deep indeed, muſt not be depended upon as a fence either againſt cattle or ſheep: but neither the one nor the other will truſt themſelves in a ditch without a bottom for them to ſtand upon; nothing indeed is more terrible to them; eſpecially if part of the mould be formed into a ſharp Banklet placed on the outer brink of the ditch.

Hares are great enemies to young Hedges: a ditch-fence is the beſt preſervative againſt them (paling or other cloſe fences only excepted). An offset, however, is favourable to them; they will run along it, and crop the plants from end to end: therefore, where hares are numerous, a tufted branch of Furze, Thorns, Holly, or other rough wood, ſhould be ſtuck here and there upon the platform, to prevent their running along it.

The next buſineſs is weeding either with the hoe or by hand; the former is more eligible where it can be uſed, as breaking the earth about the roots of the plants is of great ſervice.

Fern is a great enemy to Quick; it is difficult to be drawn by hand without endangering the plants, and being tough, it is equally difficult to be cut with the hoe; and, if cut, will preſently ſpring up again. The beſt manner of getting rid of it, when got to a

head, is to give the ſtem a twiſt near the root, and let the top remain on to wither and die by degrees: this not only prevents its immediate ſpringing, but to all appearance deſtroys the root.

Thiſtles, Docks, and other tall Weeds, are equally injurious to the tender plants, in robbing them of their nouriſhment and drawing them up weak and ſlender, or ſmothering them out-right, if not timely relieved by the foſtering hand of the planter. Even the Graſſes are offenſive, and ſhould be extirpated with all the care and attention neceſſary in a ſeed-bed or nurſery.

Nor is it enough to defend the young plants from animal and vegetable intruders; the plants themſelves muſt be taught how to grow, ſo as to beſt anſwer the purpoſe for which they are intended.

The Hawthorn is naturally a ſhrubby plant, throwing out ſtrong lateral ſhoots down cloſe to the ground; more eſpecially when planted by the ſide of a ditch, which, by giving room, favours this propenſity. Theſe horizontal branches, of courſe, draw off their ſhare of nouriſhment from the root; which nouriſhment would be better expended upon the more upright ſhoots. They are at the ſame time in the weeder's way, and by ſtraggleing acroſs the ditch, become a temptation to cattle. They ſhould therefore from time to time be ſtruck off with a ſharp inſtrument, either of the hooked or the ſabre kind.

In performing this, one rule muſt be obſerved invariably; that is, to leave the under-ſhoots the longeſt, tapering the hedgeling upwards; being very careful however not to top the leading ſhoots; for

by

by doing this, the upward tendency of the hedge will be checked; and, whilſt its face is kept trimmed in the manner here deſcribed, there is no fear of its becoming thin at the bottom.

Thus far we have been ſpeaking of the method of training the SINGLE HEDGE, whether of Crab or Hawthorn. In raiſing the HOLLY under either of theſe plants, a different kind of pruning is neceſſary: for notwithſtanding the Holly will ſtruggle in a ſurprizing manner under the ſhade and drip of other plants, yet the more air and head-room it is allowed, the greater progreſs it will make. In this caſe, therefore, the deciduous plants ſhould be pruned to ſingle ſtems in the nurſery manner; for all that is required of theſe is ſtrength and tallneſs, the Holly being a ſufficient guard at the bottom.

This may be thought an endleſs buſineſs by thoſe who have not practiſed it; but is it not equally endleſs to prune the young plants of a nurſery? And we here beg leave to remind the young planter, that if he does not pay that care and attention to his hedgelings, in every ſtage of the buſineſs, as he does to his nurſery rows, he is a ſtranger to his own intereſt. The advantage of obtaining a live-fence *upon a certainty* in ſeven or eight years, compared with that of *taking the chance* of one in fifteen or twenty, is ſcarcely to be done away by any expence whatever beſtowed upon planting and training it.

We are indeed ſo fully impreſſed with this idea, that we believe every gentleman would find his account in having even his ſingle Hedges trained with ſingle ſtems, in order that they might the ſooner

arrive

arrive at the deſirable ſtate above deſcribed,—*a range of living piles.* We beg to be underſtood, however, that we throw this out as a hint to thoſe who wiſh to excel in whatever they undertake, rather than to recommend it as a practice to Hedge-planters in general.

Nevertheleſs, we recommend in general terms, and in the ſtrongeſt manner, to keep the face of a young Hedge *trimmed*; or, if the plants be browzed by cattle, or otherwiſe become ſtinted and ſhrubby, to cut them down within a few inches of the ground; and by this and every other method promote as much as poſſible their upward growth. It is ſome time before a young Hedge becomes an abſolute fence againſt reſolute ſtock; and the ſhorteſt way of making it a *blind* is, by encouraging its upward growth, to raiſe it high enough to prevent their looking over it; and, by trimming it on the ſides, to endeavour to render it thick enough to prevent their ſeeing through it; giving it thereby the appearance, at leaſt, of a perfect fence.

A *pruned* Hedge requires a different treatment to perfect it as a fence. As ſoon as the ſtems have acquired a ſufficient ſtability, they ſhould be cut off Hedge-height; and, in order to give additional ſtiffneſs, as well as to bring the live-ſtakes into drill, ſome ſtrong dead-ſtakes ſhould be driven in here and there. This done, the whole ſhould be tightly eddered together, near the top.

As an adequate fence againſt horned cattle, the ſtems are required to be of conſiderable thickneſs; but as a ſufficient reſtraint to ſheep only, ſtrong

plants

plants may be thus treated a few years after planting; eſpecially thoſe of Crab-tree. Upon a ſheep-farm, pruning of plants would be eligible, were it only for the purpoſe of getting their heads out of the way of thoſe moſt dangerous enemies.

5. THE AFTER MANAGEMENT. There is one general rule to be obſerved in this buſineſs;—*cut often:* for the countryman's maxim is a good one;—"Cut thorns and have thorns."

The proper length of time *between the cuttings* depends upon the plant, the ſoil, and other circumſtances: ſeven or eight years may be taken as the medium age at which the Hawthorn is cut in moſt countries.

In Norfolk, however, the Hedges are ſeldom cut under twelve to fifteen years; and are ſometimes ſuffered to run twenty and even thirty years without cutting! The conſequence is, the ſtronger plants have by that time arrived at a tree-like ſize, whilſt the underlings are overgrown and ſuffocated: the number of ſtems are reduced in proportion, and at that age it is hazardous to fell the few which remain.

In Surry and Kent ſeven or eight years old is the uſual age at which the Farmers cut down their Quick Hedges: and in Yorkſhire they are frequently cut ſo young as five or ſix. This may be one reaſon of the excellency of the Yorkſhire Hedges; for under this courſe of treatment every ſtem, whether ſtrong or weak, has a fair chance: the weak ones are enabled to withſtand ſo ſhort a ſtruggle, whilſt the large ones are rather invigorated than checked by ſuch timely cropping.

With

With reſpect to the *firſt cutting*, this alſo muſt be guided by circumſtances: a full-ſtemmed thriving Hedge may ſtand from twenty to thirty years between the planting and the firſt fall; but if the plants get moſſy, or grow ſhrubby and flat-topped, or put on any other appearance of being diſeaſed or ſtinted; or if they are unequal in ſtrength, ſo that the weaker are in danger of ſuffering; or if a young Hedge be much broken into gaps, or any other way rendered defective as a fence, the ſooner it is cut down the better; for time will not mend it, and tampering with it will make it worſe: whilſt, on the contrary, cutting it down within a few inches of the ground, will give a ſalutary relief to the roots, and the freſh ſhoots will furniſh a full ſupply of ſtems, without which no Hedge can be deemed perfect.

The uſual *time of cutting* is during the ſpring months of February, March, April. The Hawthorn, however, may be cut any time in winter; and it is obſervable, that the ſhoots from the ſtools of Hedges cut in May, when the leaves were breaking forth, have been equally as ſtrong as thoſe from Hedges felled early in the ſpring. This late felling, however, is not recommended as a practice; the bruſh-wood cut out at that time, being of leſs value than that which is cut when the ſap is down.

The *methods of cutting* are various. In Surry and Kent, the general practice is to fell to the ground, ſcour out the ditch, ſet a Stake-and-Edder Hedge behind or partially upon the ſtubs, and throw ſome rough thorns into the ditch.

In

In Norfolk there are two ways practiſed: one, to cut within a few inches of the face of the bank, remake the ditch and bank, and ſet a bruſh-hedge as for the original planting: the other is called *Buck-ſtalling*; which is to leave ſtems about two feet long, without repairing the bank or ſetting a Hedge; and only ſhovelling out the beſt of the mould of the ditch to form the bottoms of dung-hills with. This is a much cheaper way than the other, and where the Hedge ſtands at the foot of the bank, and remains full ſtocked with ſtems, it is not ineligible; eſpecially if a few of the ſlendereſt of the old ſhoots be layered in between the bank and the ſtems, and kept there by a coping ſod taken from the foot of the back of the bank: but when the roots lie high in the bank, and are of courſe more or leſs expoſed, by the ſoil's mouldering away from them into the ditch, ſuch treatment is deſtructive to the Hedge; which, in this caſe, requires to be cut down within a few inches of the roots every eight or ten years, the ditch to be ſcoured, and the bank to be faced and made fencible by a Bruſh-Hedge. This circumſtance alone furniſhes ſufficient argument againſt planting high in the bank.

In Hertfordſhire, Glouceſterſhire, and ſome parts of Yorkſhire, *plaſhing* is much in uſe. This is done by cutting the larger ſtems down to the ſtub, and topping thoſe of a middling ſize Hedge-height by way of ſtakes, between which the moſt ſlender are interwoven, in the wattle-manner, to fill up the interſtices and give an immediate live-fence. If

live

live ſtakes cannot be had, dead ones are uſually driven in their ſtead: and in order to keep the plaſhes in their places, as well as to bring the ſtakes into a line and ſtiffen the whole, it is cuſtomary in moſt places to edder ſuch Hedges.

If the ſtems alone are not ſufficient as a fence, this method of treatment may in ſome caſes be eligible, provided it be properly executed: much, however, depends upon the manner of doing it; many good Hedges have been ſpoiled by plaſhing. The plaſhers ſhould be numerous, and ſhould be trimmed to naked rods, in order that their ſpray may not incommode the tender ſhoots from the ſtools below: they ſhould be laid in an aſcending direction, ſo that they may be bent without nicking at the root, if poſſible: ſuch as will not ſtoop without danger of breaking, ſhould be nicked with an *upward* not with a *downward* ſtroke: *that*, if properly done, gives a *tongue* which conducts the rain-water from the wound; *this*, a *mouth* to catch it.

However, in caſes where the *ſtems* ſtand regular, and are of themſelves ſtiff enough for a Fence, or where they can be readily made ſo by driving large ſtakes in the vacancies and weak places, plaſhing and every other expedient ought to be diſpenſed with: — where, upon examination, the ſtems are found inſufficient, it is generally the beſt practice to fell the whole to the ground, and train a ſet of new ones.

In caſe of gaps or vacancies too wide to be filled up by the natural branches of the contiguous ſtools, they ſhould be filled up by *layering* the neighbouring

ing young ſhoots, the firſt or ſecond year after felling; being careful to weed and nurſe up the young layers until they be out of harm's way. If ſuch vacancies be numerous, it is beſt to keep the whole Hedge, let its ſituation be what it may, trimmed low, in order to give air and head-room to the layers.

All renewed Hedges, whether layered or not, ſhould be trimmed on the ſides the firſt and ſecond years after renewal; at the ſame time weeding out the brambles, thiſtles, dock, and every other *weed*, whether herbaceous or ligneous; which, by crouding the bottom, prevent the young branches from uniting and interweaving with each other.

The proper time for performing this is when the thiſtles are breaking into blow, before their ſeeds have acquired a vegetative body. The large Spear-Thiſtle (*Carduus lanceolatus*), ſo miſchievous in young Hedges, and ſo conſpicuouſly reproachful to the Farmer when its ſeeds are ſuffered to be blown about the country, is a biennial plant, which does not blow till the ſecond year; when, having produced its ſeed, the root dies: it is therefore unpardonable to neglect taking this in the criſis; for by ſo doing the whole race becomes at once extirpated.

The fitteſt inſtrument for the purpoſe of trimming and weeding is a long hook, or rather a long ſtraight blade with a hooked point, which is convenient for cutting out the brambles and weeds that grow in the middle of the Hedge, as well as for other purpoſes. We will venture to ſay, that whoever puts this piece of huſbandry in practice once will not

not neglect doing it a ſecond time; the uſes, as well as the neatneſs, reſulting from it are numerous, and the expence of performing it little or nothing.

If the Hedge be intended to run up, either as a ſource of uſeful materials, or as a ſhelter in Graſs-land incloſures, the leading ſhoots ſhould not be touched; nevertheleſs, it ought, in theſe two early trimmings, to be kept thin towards the top, leaving it to ſwell out thicker towards the bottom: but, if it be intended to be kept down, as we have already ſaid it ought to be between arable incloſures, the leading ſhoots ſhould be cropped low both the firſt and the ſecond year, in order to check its upward tendency, and give it a dwarfiſh habit; and the cropping muſt be repeated from time to time, as occaſion may require.

A Hedge under this treatment becomes a perpetual Fence, and its duration may be deemed everlaſting. The age of the Hawthorn is probably unknown; but ſuppoſing that it will bear to be felled every ten years for two hundred years, during which time there will be twenty falls of wood (what a mountainous pile for one ſlip of land and one ſet of roots to produce!) may we not be allowed to ſuppoſe that a ſimilar hedge, kept in a dwarfiſh ſtate (in which ſtate its produce, and conſequently its exhauſtion, could not be one-tenth ſo much as that in the former ſuppoſition) would live to the age of three or four hundred years? Tenants have only a temporary property in the hedges of their reſpective farms; and it is the buſineſs of landlords or their agents to ſee that they are properly treated. The value of an eſtate is

height-

heightened or depreciated by the good or bad ſtate of its fences; which, it is well known, are expenſive to raiſe, and, when once let down, are difficult to get up again.

With reſpect to the rough and the worn-out Hedges, which conſtitute a large majority of the Hedges of this country, it is not an eaſy matter to lay down any preciſe rules of treatment. If the ground they grow in be ſufficiently moiſt, they may be helped by felling and layering in the manner already deſcribed, or by filling up the vacancies with young quicks, or with the cuttings of ſallow, elder, &c. &c. firſt clearing the ground from ivy and other encumbrances; but, in a dry bank which has been occupied by the roots of trees and ſhrubs for ages, and which by its ſituation throws off the rain-water that falls upon it, there can be little hope either of plants or cuttings taking to advantage.

The beſt aſſiſtance that can be given in this caſe is to drive ſtakes into the vacancies, and interweave the neighbouring boughs between the ſtakes, training them in the eſpalier manner: or, if the vacancies be wide, to plaſh tall boughs into them.

Theſe, however, are only temporary reliefs; for if the bodies of the plants themſelves be ſuffered to run up and draw the nouriſhment from the plaſhers, the breaches will ſoon be opened again, and it will be found difficult to fill them up a ſecond time: the only way by which to render this method of treatment in any degree laſting, is to keep the whole hedge trimmed as ſnug and low as

the purpoſe for which it is intended will permit; weeding it with the ſame care as a young Hedge. By this means the vacancies in time will grow up, and one regularly interwoven ſurface will be formed.

After all, however, an old worn-out Hedge, with all the care and attention that can be beſtowed upon it, cannot continue for any length of time; and whenever it verges upon the laſt ſtage of decline, it is generally the beſt management to grub it up at once, and raiſe a new one in its place; otherwiſe the occupier muſt be driven, in the end, to the humiliating and diſgraceful employment of patching with dead Hedge-work.

We are happy in having it in our power to ſay, that the practice of *replanting* Hedges has, of late years, become prevalent in a county which has long taken the lead in many important departments of huſbandry; and although we have had occaſion to cenſure ſome of its practices, with reſpect to Fences, we have great pleaſure in giving to it due praiſe in this particular; we ſpeak of the county of Norfolk. The beſt way is to level the old bank about Michaelmas, in order that the mould may be thoroughly moiſtened by the winter's rains, and tempered by the froſts. The roots and old ſtems will, in general, more than repay the expence of grubbing and levelling, and when the old ſtools are numerous, and fuel is dear, will, ſometimes, go a good way towards raiſing the new Fence. One great advantage ariſing from this

practice

practice, in an arable country, is the doing away the crookedneſs of old Hedges.

There is one general rule to be obſerved in renewing a Hedge in this manner, which is to plant a ſpecies of Hedge-wood different from that which formerly occupied the ſoil; and we know of no better change after the Hawthorn, than the Crab-tree and Holly.

Thus, having mentioned the ſeveral ways of raiſing and repairing LIVE HEDGES, we now come to the training, and general treatment, of HEDGE-ROW TIMBER: and, firſt, as to the young Oaks, which we recommended to be planted with the Hedge-wood.

The moſt eligible length of ſtem has been mentioned to be from fifteen to twenty-five feet; and, with due attention to their leading ſhoots, there will be little difficulty in training them to that or a greater height. If, by accident or diſeaſe, the head be loſt, the ſtem ſhould be taken off at the ſtub, and a freſh ſhoot trained. However, in this caſe, if the Hedge be got to any conſiderable height, it is beſt to let the ſtump ſtand until the firſt fall of the Hedge-wood; for then the young tree may be trained with leſs difficulty.

Next to the danger of being cropt by cattle, is that of the young trees being hurt by the Hedge-wood: firſt, from their being overhung and ſmothered amongſt it; ſecondly, from their being drawn up too tall and ſlender; thirdly, from their being chafed againſt the boughs by the wind; and, laſtly, from their ſtems getting locked in between

the branches, ſo as to cauſe an indenture in the ſtem, and thereby render it liable to be broken off by the wind. The ſimpleſt way of guarding againſt theſe evils is to keep the Hedge-wood down to fence-height; otherwiſe great care and attention are requiſite in training Hedge-timber. Even in this caſe, the plants ſhould be frequently looked over, — to ſee that the lower parts of them do not interfere with the ſtems of the Hedge-wood, — to take off, as occaſion may require, the lateral ſhoots, — and to give ſimplicity and ſtrength to the leaders, until the plants have acquired a ſufficient length of ſtem.

When this is obtained, it may not be amiſs to endeavour to throw the general tendency of the head to one or the other ſide of the Hedge, in order to give air and head-room to the plants, and *crookedneſs* to the timber. In ſhort, if trees in Hedges are not treated with the ſame attention as thoſe in Nurſeries and Plantations, it were better not to plant them; as they will become an encumbrance to the Hedge, without affording either pleaſure or profit to the planter or his ſucceſſors.

What remain now to be conſidered are, the GROWN TIMBERS, the TIMBER STANDS, and the POLLARDS, with which old Hedges are frequently ſtored.

There is not a more abſurd practice in the whole circle of rural affairs, than that of making FALLS of HEDGE-ROW TIMBER; which is neither more nor leſs than for the woodman to begin at one end

of

of the Hedge, and hack down every timber-tree he comes at, whether full-grown, over-grown, or only half-grown, until he reaches the other. The impropriety is the ſame, whether a young thriving tree be taken down before it has arrived at its full growth, or an old one be ſuffered to remain ſtanding after it has entered upon the ſtage of decline.

A timbered eſtate ſhould frequently be gone over by ſome perſon of judgement; who, let the price and demand for timber be what they may, ought to mark every tree which wears the ſmalleſt appearance of decay. If the demand be briſk and the price high, he ought to go two ſteps farther, and mark not only ſuch as are full grown, but ſuch alſo as are near perfection; for the intereſt of the money, the diſencumbrance of the Hedge and the neighbouring young timbers, and the comparative advantages of a good market, are not to be bartered for any increaſe of timber which can reaſonably be expected from trees in the laſt ſtage of their growth.

There are men in this kingdom, who, from miſmanagement of their timber, are now loſing annually very handſome incomes. The loſs of price, which generally follows the refuſal of a high offer, the certain loſs of intereſt, the decay of timber, and the injuries ariſing from the encumbrance of full-grown trees, are irretrievable loſſes,

which thoſe who have the care and management of timber ſhould ſtudiouſly endeavour to avoid.

But whilſt we thus hold out the diſadvantages of ſuffering timber to ſtand until it be overgrown, it is far from our intention to recommend, or even countenance, a premature felling,—of Hedge-row timbers more particularly: for, although in woods and cloſe groves a ſucceeding crop of ſaplings may repair in ſome degree the loſs of growth in timber untimely fallen, yet it is not ſo in Hedges, — where ſapling ſtands are liable to be ſplit off from the ſtool, as ſoon as they acquire any conſiderable top; being expoſed ſingly, and on every ſide, to the wind: and all that can be expected from the ſtools of trees in Hedge-rows is a ſufficiency of ſhoots to fill up the breach in the Hedge.

With reſpect to POLLARDS * in Hedges, ſome general rules are obſervable. Pollards which are full-grown, but yet remain ſound, ſhould be taken down before they become tainted at the heart;—for a good gate-poſt is worth five ſhillings; but a Firing Pollard, of the ſame ſize, is not worth one ſhilling. Firing Pollards which, by reaſon of their decay, or ſtintedneſs, will not, in the courſe of eighteen or twenty years, throw out tops equal in value to their preſent bodies, ſhould alſo be taken down;—for the principal and intereſt of the money

* Trees which have been *polled*, topt, or headed down to the ſtem.

will

will be worth more at the end of that time than the body and top of the Pollard; beſides the deſirable riddance of ſuch unſightly encumbrances. But in caſe a Pollard is already ſo much tainted as to be rendered uſeleſs as timber, yet ſound enough to all preſent appearances to throw out in the time abovementioned a top or tops of more than equal value to its preſent body;—it reſts upon a variety of circumſtances, whether, in ſtrict propriety of management, ſuch Pollard ought to ſtand or fall.

We declare ourſelves enemies to Pollards; they are unſightly; they encumber and deſtroy the Hedge they ſtand in, (eſpecially thoſe whoſe ſtems are ſhort) and occupy ſpaces which might in general be better filled by timber-trees; and, at preſent, it ſeems to be the prevailing faſhion to clear them away: nevertheleſs, in a country in which woodlands and coppices are ſcarce, Hedge-pollards furniſh a valuable ſupply of fuel, ſtakes, &c.—and every man who clears away the claſs of Pollards laſt-mentioned, without planting an adequate quantity of coppice-wood, commits a crime againſt poſterity; more eſpecially in a diſtrict which depends wholly upon the ſea for a ſupply of coals. For, although Great Britain is at preſent miſtreſs of her own coaſt, what man is raſh enough to ſay, that, amidſt the revolutions in human affairs, ſhe will always remain ſo? She *once* was miſtreſs of the ſea at large!

With reſpect to the YOUNG TIMBERS which frequently abound in rough Hedge-rows, we venture to recommend the following management.

Upon eſtates whoſe Hedge-timber has been little attended to, (and, we are ſorry to ſay, ſuch are nine-tenths of the eſtates in the kingdom) the firſt ſtep is to ſet out the plants, and clear away the encumbrances.

After what has been ſaid, it may be needleſs to repeat here, that where the choice reſts upon the ſpecies of tree, the Oak ſhould invariably be choſen; for every other ſpecies we conſider as a kind of encumbrance, which ought to be done away as ſoon as it can with any colour of propriety.

It is bad practice to permit Hedges to remain crouded with timber-ſtands; they ſhould, in general, be ſet out ſingle, and at diſtances proportioned to their reſpective ſizes; ſo that their tops be not ſuffered to interfere with each other.

There is, however, one exception to this rule: where two trees, ſtanding near each other, have grown up in ſuch a manner that their joint branches form, in appearance, but one top, they ſhould both be permitted to ſtand; for if one of them be removed, the other will not only take an unſightly outline, but will receive a check in its growth, which it will not overcome for ſeveral years. It is, nevertheleſs, obſervable that twin trees, as well as thoſe which are double-ſtemmed, are dangerous to ſtock; not only horned-cattle, but even horſes, have been known to be ſtrangled by getting their heads locked in between them.

The

The method of training the young plants has already been deſcribed; it now only remains to ſay a few fords as to the PRUNING and SETTING-UP Hedge-row timbers.

Low-headed trees have been already condemned, as being injurious to the Hedge, as well as to the Corn which grows under them. To remove or alleviate theſe evils without injuring the tree itſelf, requires the beſt ſkill of the woodman. The uſual method is to hack off the offending bough; no matter how nor where; but, moſt probably, a few inches from the body of the tree, with an axe; leaving the end of the ſtump ragged, and full of clifts and fiſſures, which, by receiving and retaining the wet that drips upon them, render the wound incurable. The mortification in a ſhort time is communicated to the ſtem, in which a receſs or hollow being once formed, ſo as to receive and retain water, the decline of the tree, though otherwiſe in its prime, from that time muſt be dated; and, if not preſently taken down, its properties as a timber-tree will, in a few years, be changed into thoſe of fire-wood only. How many thouſand timber-trees ſtand at this hour in the predicament here deſcribed; merely through injudicious lopping. It is this vile treatment which has brought Hedge-row timber into a diſrepute otherwiſe undeſerved.

There is a wonderful ſimilarity in the operations of Nature upon the Vegetable and the Animal Cre-

Creation. A ſlight wound in the Animal Body ſoon heals up, and ſkins over, whilſt the wound ſucceeding the amputation of a limb is with difficulty cicatrized. The effects are ſimilar with reſpect to the Vegetable Body: a twig may be taken off with ſafety, whilſt the amputation of a large bough will endanger the life of the tree. Again, pare off a ſmall portion of the outer bark of a young thriving tree, the firſt ſummer's ſap will heal up the wound: if a ſmall twig had been taken off with this patch of bark, the effect would have been nearly the ſame; the wound would have been cicatrized, or barked over, in a ſimilar manner; and the body of the tree as ſafely ſecured from outward injury, as if no ſuch amputation had taken place. Even a conſiderable branch may be taken off in this manner with impunity, provided the ſurface of the wound be left ſmooth and fluſh with the *inner* bark of the Tree; for, in a few years, it will be completely cloſed up, and ſecured from injury; though an eſchar may remain for ſome years longer. But if a large bough be thus ſevered, the wound is left ſo wide, that it requires in moſt trees a length of time to bark it over; during which time the body of the tree having increaſed in ſize, the parts immediately round the wound become turgid, whilſt the face of the wound itſelf is thrown back into a receſs; and, whenever this becomes deep enough to hold water, from that time the wound is rendered incurable: Nature has, at leaſt,

done

done her part; and whether or not, in this caſe, aſſiſtance may be given by opening the lower lip of the wound, remains yet (it is probable) to be tried by experiment: until that be aſcertained, or ſome other certain method of cure be known, it were the height of imprudence to riſk the welfare of a Tree on ſuch hazardous treatment.

Further, although a branch of conſiderable ſize may be taken off cloſe to the body of the Tree with ſafety; yet if the ſame branch be cut *a few inches* from it, the effect is not the ſame; for, in this caſe, the ſtump generally dies; conſequently the cicatrization cannot take place, until the ſtem of the Tree has ſwelled over the ſtump, or the ſtump has rotted away to the ſtem; and, either way, a mortification is the probable conſequence. Even ſuppoſing the ſtump to live, either by means of ſome twig being left upon it, or from freſh ſhoots thrown out, the cicatrization, even in this caſe, will be ſlow (depending entirely upon the feeble efforts of the bark of the ſtump); and before it can be accompliſhed, the Tree itſelf may be in danger. But, had the amputation been made *at a diſtance* from the ſtem, and immediately *above a twig*, ſtrong enough to draw up a ſupply of ſap, and keep the ſtump alive upon a certainty, no riſque would have been incurred; eſpecially if the end of the ſtump had been left ſmooth, with the ſlope on the under-ſide, ſo that no water could hang, nor receſs be formed.

From

From what has been ſaid, the following general rules with reſpect to ſetting up low-headed trees may, we humbly conceive, be drawn with ſafety: *ſmall boughs ſhould be cut off cloſe to the ſtem; but large ones at a diſtance from it, and above a lateral branch large enough to keep the ſtump alive.* Thus, ſuppoſing the ſtem of a tree in full growth to be the ſize of a man's waiſt, a bough the thickneſs of his wriſt may be taken off with ſafety near the ſtem; but one as thick as his thigh ſhould be cut at the diſtance of at leaſt two feet from it; leaving a ſide branch at leaſt an inch in diameter, with a top in proportion, and with air and head-room enough to keep it in a flouriſhing ſtate. For this purpoſe, as well as for the general purpoſe of throwing light into the head, the ſtanding boughs ſhould be cleared from their lower branches, particularly ſuch as grow in a drooping direction. In doing this no great caution is required; for in taking a bough from a bough, let their ſizes be what they may, little riſque can be thereby incurred upon the main body of the tree.

There is another general rule with regard to pruning trees. The bough ſhould be taken off either by the *upward ſtroke* of a ſharp inſtrument (and, generally ſpeaking, *at one blow*), or with a ſaw: in the latter caſe it ſhould previouſly be notched on the under-ſide, to prevent its ſplitting off in the fall. If the bough to be taken off be very large, the ſafeſt way (though ſomewhat tedious) is firſt to cut it off a few inches from the

ſtem

ſtem with an axe, and then to clear away the ſtump cloſe and level with a ſaw, doing away the roughneſſes left by the teeth of the ſaw with a plane, or with the edge of a broad-mouthed axe, in order to prevent the wet from hanging in the wound. A ſaw for this purpoſe ſhould be ſet very wide; otherwiſe it will not make its way through the green wood.

The fitteſt opportunity for pruning and ſetting up young timbers, as well as for taking down Pollards and dotard timbers, and clearing away other encumbrances, is when the Hedge itſelf is felled; and it were well for landed individuals (as for the nation at large) if no Hedge was ſuffered to be cut down without the whole buſineſs of the Hedge-row being at the ſame time properly executed.

Laſtly, with reſpect to *filling up blanks* in old Hedge-rows with young timber-trees, much may be ſaid, tho' few general rules can be given. Dry banks in general are unfriendly to young trees; thoſe more eſpecially which are already fraught with the roots of other trees or ſhrubs, as the banks of old Hedge-rows generally are.

There is another circumſtance obſervable in filling up a vacancy cauſed by felling a grown timber-tree: it is not enough to wait until ſuch time as the old roots are rotten; for, even then, it will be in vain to plant a tree of the ſame ſpecies as that taken down. It is a fact well known in the cyder counties, that when once a piece of ground has worn-out a ſuit of fruit-trees, it is in vain to think of making it an orchard a ſecond time: the trees

may

may be made to *grow*, but never to *thrive* to advantage.

Another thing material in this buſineſs is the diſtance to be obſerved between the trees and the Hedge. A Hedge-tree ſhould either ſtand in the line of the fence, or at the diſtance of three or four feet from it, ſo that cattle may be able to walk between them without hurting themſelves or the fence. A tree which ſtands near the fence, but not in it, is equally dangerous to the Hedge and to cattle, which coming to it, either by way of a rubbing-poſt, or for the benefit of its ſhade, ſeldom fail of tearing down the bank at leaſt; and it frequently happens, that whilſt one of them is ſtanding with its head behind the tree, another takes it by ſurprize, and forces it over the Hedge.

Theſe particulars being premiſed, it aptly follows, that before a Hedge-bank can be planted with timber-trees with any proſpect of ſucceſs, it is neceſſary, in the firſt place, that the part or parts where the trees are to be planted ſhould be trenched two ſpits deep, and at leaſt ſix feet wide, meaſuring from the Hedge; in order to clear it from roots, and to meliorate the ſoil. Secondly, that, except the ſituation be particularly moiſt, the ſoil ought to be thoroughly ſoaked with water at the time of planting, and as often afterwards as the droughtineſs of the ſeaſons may require. Thirdly, that in the choice of plants proper for the occaſion, the Planter ſhould be guided by the ſpecies which laſt occupied the ſpace now to be filled up. If the part to be planted has never been occupied, then the Oak

ſhould

ſhould be invariably choſen; or if it has been occupied by another tree (the Oak itſelf excepted), the choice ought to be the ſame: if the Oak, and that lately, it would be injudicious to throw away labour and plants without a proſpect of being repaid; therefore, in this caſe, and in this caſe only, we recommend the Elm; provided the ſoil be ſufficiently ſtrong: in a light upland ſoil, the Beech, the Larch, or the Pine-Tribe, ſhould be ſubſtituted; or the ſoil ſuffered to remain unoccupied until time has rendered it ſuitable to receive the Oak again.

Laſtly, the plants ſhould be ſet at about three feet diſtance from the Hedge, ſhould be ſtrong healthy plants, at leaſt ten or twelve feet high, and ſhould be effectually fenced from cattle. This alone is enough to deter a man from an undertaking of this nature; for if the young plants are not effectually guarded againſt cattle and other ſtock, all his labour is loſt. We know but of one eligible way of getting over this difficulty: the work ſhould not be undertaken at any other time than when the Hedge is felled; upon which occaſion it becomes neceſſary that ſome temporary fence ſhould be made to guard the young Hedge; and if, inſtead of placing this immediately behind the Quick, it be ſet at ſeven or eight feet from it, ſo as to include the ſix-foot ſlip of trenched ground, the young trees may be ſecured at a reaſonable expence; whilſt the ſlip incloſed may be planted with

with Potatoes, Cabbages, Turnips, &c. until ſuch time as the plants be ſtout enough to defend themſelves; — the face of the Hedge being guarded with thorns placed in the ditch.

WOOD-

WOODLANDS;

OR,

USEFUL PLANTATIONS.

ALTHOUGH it may be a difficult taſk to diſtinguiſh nicely between *uſeful* and *ornamental* plantations *, yet the diſtinction between a rough coppice in a recluſe corner of a farm, and a flowering ſhrubbery under the windows of a manſion, is obvious: the one we view as an object of *pleaſure* and amuſement, whilſt the other is looked upon in the light of *profit* only. Upon theſe premiſes we ground our diſtinction. Under the preſent head we purpoſe to ſpeak of plantations whoſe leading features are of the more uſeful kind, and whoſe principal end is profit; reſerving thoſe whoſe diſtinguiſhing characteriſtics are ornamental, and whoſe primary object is pleaſure, for the article GROUNDS.

Perhaps, it will be expected, that before we begin to treat of the propagation of TIMBER, we ſhould previouſly prove an approach-

* See page 445.

ing ſcarcity of that neceſſary article in this country: for it may be argued, that every acre of land applied to the purpoſes of planting is loſt to thoſe of agriculture; and as far as *culturable* land goes, the argument is juſt. To ſpeak of this ſubject generally as to the whole kingdom, and at the ſame time preciſely, is perhaps what no man is prepared for.

From an extenſive knowledge of the different parts of the kingdom, we believe that the nation has not yet experienced any real want of timber. We are happy to find that in many parts of it there are great quantities now ſtanding; whilſt in many other parts we are ſorry to ſee an almoſt total nakedneſs. With reſpect to large well-grown OAK TIMBER, ſuch as is fit for the purpoſes of SHIP-BUILDING, we believe there is a growing ſcarcity throughout the whole kingdom.

We will explain ourſelves, by ſpeaking particularly as to one diſtrict — the Vale of Derwent, in Yorkſhire. This diſtrict for ages paſt has ſupplied in a great meaſure the ports of Whitby and Scarborough with ſhip-timber. At preſent, notwithſtanding the extenſive tracts of Woodlands ſtill remaining, there is ſcarcely a tree left ſtanding with a load of timber in it. Beſides, the woods which now exiſt have principally been raiſed from the ſtools of timber-trees formerly taken down; the ſaplings from which being numerous, they have drawn each other up ſlender, in the grove manner;

and

and conſequently never will be ſuitable to the more valuable purpoſes of the ſhip-builder.

When we conſider the prodigious quantity of timber which is conſumed in the conſtruction of a large veſſel, we feel a concern for the probable ſituation of this country at ſome future period. A ſeventy-four gun ſhip (we ſpeak from *good authority*) ſwallows up nearly, or full, three thouſand loads of Oak timber. A load of timber is fifty cubical feet; a ton, forty feet; conſequently, a ſeventy-four gun ſhip takes 2,000 large well-grown timber-trees; namely, trees of nearly two tons each!

The diſtance recommended by authors for planting trees in a *Wood* (a ſubject we ſhall ſpeak to particularly in the courſe of this chapter) in which Underwood is alſo propagated, is thirty feet or upwards. Suppoſing trees to ſtand at two rods (33 feet, the diſtance we recommend they ſhould ſtand at in ſuch a plantation), each ſtatute acre would contain 40 trees; conſequently the building of a ſeventy-four gun ſhip would clear, of ſuch Woodland, the timber of 50 acres. Even ſuppoſing the trees to ſtand at one rod apart (a ſhort diſtance for trees of the magnitude above-mentioned), ſhe would clear twelve acres and an half; no inconſiderable plot of Woodland. When we conſider the number of king's ſhips that have been built during the late unfortunate war; and the Eaſt Indiamen, merchants ſhips, colliers, and ſmall craft, that are launched daily in the different ports of the kingdom, we are ready to tremble for the conſequences. Nevertheleſs, there are men who

treat the idea of an approaching ſcarcity as being chimerical; and, at preſent, we will *hope* that they have ſome foundation for their opinion, and that the day of want is not near. At ſome future opportunity we may endeavour to reduce to a degree of certainty, what at preſent is, in ſome meaſure, conjectural. The preſent ſtate of this iſland with reſpect to ſhip-timber is, to the community, a ſubject of the very firſt importance.

However, in a work like the preſent, addreſſed to individuals rather than to the nation at large, a true eſtimate of the general plenty or ſcarcity of timber is only important, as being inſtrumental in aſcertaining the local plenty or ſcarcity which is likely to take place in the particular neighbourhood of the planter. This may be called a new doctrine in a Treatiſe upon Planting. It is ſo, we believe, and we wiſh to have it underſtood, that we addreſs ourſelves to the private intereſt, rather than to the public ſpirit, of our readers; and we appeal to every man who has had extenſive dealings with mankind for the propriety of our conduct.

We are well aware that, ſituated as this country appears to us to be at preſent, Planting ranks among the firſt of public virtues; nevertheleſs, we rather wiſh to hold out that *laſting fame* which always falls to the ſhare of the ſucceſsful planter, and thoſe *pecuniary advantages* which muſt ever reſult from plantations judiciouſly ſet about, and attentively executed, as being motives of a more *practical* nature.

We

We wiſh, in the firſt place, to do away a miſtaken notion, that when once a piece of ground is ſet apart for a plantation, it becomes a dead-weight upon the eſtate, or a blank in it at leaſt. Nothing can be leſs true; for plantations, entered upon with judgment, and carried on with ſpirit, accumulate in value like money at intereſt upon intereſt. If an eſtate after a plantation has been made upon it is not worth more by the trouble and expence of making it, the undertaking was either ill-judged or badly executed.

An ozier-bed comes to profit the ſecond or third year, and a coppice in fifteen or twenty, whilſt an Oak may be a century before he reach the moſt profitable ſtate; but do they not in effect all pay an annual income? Do not eſtates ſell at a price proportioned to the value of the timber which is upon them? and does not this value increaſe annually? The ſweets of a fall are well underſtood, and the nearer we approach to this the more valuable are the trees to be fallen.

We have ſome knowledge of a gentleman now living, who during his life-time has made plantations, which, in all probability, will be worth to his ſon as much as his whole eſtate, handſome as it is. Suppoſing that thoſe plantations have been made fifty or ſixty years, and that in the courſe of twenty or thirty more they will be worth 50,000l. may we not ſay that at preſent they are worth ſome twenty or thirty thouſand? What an incitement to planting!

Every thing, however, depends upon management. It is not ſticking in a thouſand or ten thou-

ſand plants, as if for the ſole purpoſe of ſaying, "I have done thoſe things," without giving them a ſecond thought, that will ever bring in the profits of planting; yet, how many gentlemen do we ſee ſquandering their money, laying their lands waſte, and rendering themſelves ridiculous, by ſuch management!

The firſt ſtep to be taken by a man who wiſhes to ſerve his family and his country, and at the ſame time afford amuſement and acquire credit to himſelf, by planting, is to conſider well his own particular ſituation.

Much depends upon LOCALITY, or relative ſituation, with reſpect to water-carriage, and a variety of other circumſtances; as contiguity to a large town, or a manufacturing place, which generally enhances the value of land, and the price of labour.

Much alſo depends upon the NATURAL FEATURES, or poſitive ſituation of his eſtate: the hang of a hill which is too ſteep for the plow, and a ſwampy bottom too rotten to bear paſturing ſtock, and which cannot be rendered firm enough for that purpoſe but at too large an expence, may in general be highly improved by planting.

Again, where the top-ſoil, or culturable ſtratum, is of an unproductive nature, whilſt a bed of clay, loam, or other good ſoil lies under it, planting may ſometimes be made greatly advantageous. An inſtance occurs in the Vale of Glouceſter, of a coppice which pays at the rate of fourteen or fifteen ſhillings an acre annually, whilſt the land

land which ſurrounds it is not worth more than eight or ten ſhillings. The ſoil is a *ſour* clay, and the ſub-ſtratum a calcareous loam. The valuable plantations above-mentioned afford a ſimilar inſtance; the top-ſoil is a light unproductive ſand, under which lies a thick ſtratum of ſtrong clayey loam. Whereever we ſee the Hawthorn flouriſh upon *bad land*, we may venture to conclude, that, under ordinary cir cumſtances, ſuch land will pay for planting.

But with reſpect to low lands which wear a profitable ſward, and will bear the tread of cattle, or which by judicious draining can be rendered ſuch at a reaſonable expence; alſo up-lands which by proper management will throw out profitable crops of corn and other arable produce, more eſpecially if the ſub-ſtratum is of a nature ungenial to the ligneous tribes; under theſe circumſtances, we are of opinion, planting can ſeldom be carried on upon a large ſcale with propriety. Nevertheleſs, even under theſe circumſtances Belts and other Skreen-plantations upon expoſed heights; as well as Sheltering Groves, and ſtripes or patches of planting to fill up the inconvenient crookedneſſes of the borders of arable fields; may be productive of real and ſubſtantial improvement to an eſtate.

The next ſtep which a Gentleman ought to take before he ſet about raiſing plantations upon a large ſcale, is to look round his neighbourhood, and make himſelf acquainted with its preſent ſtate as to Woodlands, as well as with the comparative value which theſe bear to arable and graſs lands. He muſt go ſtill farther; he muſt learn the natural conſumption of the country; not only of timber in

general, but of the ſeveral ſpecies. Nor muſt he ſtop here; he muſt endeavour to pry into futurity, and form ſome judgment of the particular ſpecies, whether it be Oak, Aſh, Elm, Beech, the Aquatics, Pines, or Coppice Woods, which will be wanted at the time his plantations arrive at maturity.

It is poſſible there may be ſituations in this iſland, where, from a ſuper-abundance of Woodlands, it would be unprofitable to plant even hangs, bogs, and bad top-ſoils: it is not probable, however, that any ſuch places are to be found; for in a country ſituated near water-carriage, (and if the preſent ſpirit of cutting canals continue to prevail, what part of this iſland will, a century hence, be out of the reach of water-carriage?) ſhip-timber will, in all human probability, always find a market; and, in ſituations remote from ſuch cheap conveyance, foreign timber will always bear a price proportionably high; conſequently the timber raiſed in ſuch a country, in all probability, will find a market in the neighbourhood of its growth.

Before we begin to ſpeak of the ſeveral ſpecies of plantations or woodlands, and the methods of raiſing them, it will be proper to enumerate the different ſpecies of trees which we conceive as moſt eligible to be planted for the purpoſe of timber and underwood in this country.

Under the article TIMBER it appears that
The Oak,
The Aſh,
The Elm, and

The

The Beech,

are the four principal *domeſtic* timbers now in uſe in this kingdom: To which muſt be added

The Pines, and

The Aquatics,

as ſubſtitutes for *foreign* timber at preſent imported in vaſt quantities into this iſland: And to thoſe muſt be added, as *underwoods*,

The Hazel, The Ozier, and
The Sallow, The Box.

There are four diſtinct ſpecies of WOODLANDS:

Woods,
Timber-groves,
Coppices,
Woody Waſtes.

By *Woods* are meant a mixture of timber-trees and underwood; by *Timber-groves*, a collection of timber-trees only, placed in cloſe order; by *Coppices*, underwood alone, without an intermixture of timber-trees; and by *Woody Waſtes*, graſs land overrun with rough woodineſſes; or a mixture of Woodland and graſſy patches; which being thought an object of paſturage, the wood is kept under by being browſed upon by ſtock, whilſt the graſs in its turn is ſtinted by the trees, and rendered of an inferior quality by the want of a free admiſſion of ſun and air.

In practice, theſe Woody Waſtes ought firſt to be taken under conſideration; for whilſt a Gentleman has an acre of ſuch land upon his eſtate, he ought not (generally ſpeaking) to think of ſetting about raiſing original plantations: for if graſſineſs prevail, and the ſoil be unkind for Wood, let this be clear-

ed

ed away, and the whole be converted to paſture or arable. But if, on the contrary, the woodineſs prevails, fence out the ſtock, and fill up the vacancies in the manner *hereafter* deſcribed: for, in a ſyſtematic Treatiſe upon Planting, we think it moſt conſiſtent with method to treat of Woodlands in the order already ſet down.

WOODS.

OPEN Woods are adapted more particularly to the purpoſe of raiſing timber for ſhip-building, and perhaps for ſome few other purpoſes where *crookedneſs* is required. Where a *ſtraightneſs* and length of ſtem and cleanneſs of grain are wanted, CLOSE WOODS or GROVES are more eligible; and where Underwood is the principal object, COPPICES unencumbered with timber-trees are moſt adviſeable.

It follows, that no tree whatever but the Oak can be raiſed with propriety in open Woods, and this only when a ſupply of ſhip-timber is intended; conſequently open Woods are peculiarly adapted to places lying conveniently for water-carriage, or which may in all probability lie convenient for water-carriage a century or two hence.

Various opinions prevail with reſpect to the moſt eligible method of raiſing a Wood: ſome are warm advocates for *ſowing*, others for *planting*; ſome again

again are partial to *rows*, whilſt others prefer the *random* manner.

The diſpute about ſowing and planting may in ſome meaſure be reconciled in the following manner: Where the ſtrength of the land lies in the ſub-ſtratum, whilſt the top-ſoil is of an ungenial nature, *ſow*, in order that the roots may ſtrike deep, and thereby reap the full advantage of the treaſures below: but, on the contrary, when the top-ſoil is good, and the bottom of an oppoſite quality, *plant*, and thereby give the roots the full enjoyment of the productive part of the ſoil; or, under theſe laſt circumſtances, *ſow*, and *tap* the young plants as they ſtand (with a tapping inſtrument), and thereby check their downward tendency, and ſtrengthen their horizontal roots.

By *this* method of treating ſeedling plants, the peculiar advantage of planting is obtained. The diſpute therefore ſeems to reſt entirely upon this queſtion: Which of the two methods is leaſt expenſive? To come at this, there are two things to be conſidered—the *actual expence* of labour and other contingent matters, and the *loſs of time* in the land occupied. With reſpect to the former, ſowing is beyond compariſon the cheapeſt method; but in regard to the latter, planting may ſeem to gain a prefence; for the ſeed-bed is ſmall compared with the ground to be planted, and whilſt that is rearing the ſeedling plants, this continues to be applied to the purpoſes of huſbandry. However, if we conſider the check which plants in general receive

receive in tranſplantation *, and if (as we ſhall hereafter ſhew) the interſpaces of an infant Wood may for ſeveral years after ſowing be ſtill cultivated to advantage, the preference we conceive is evidently and beyond all diſpute on the ſide of ſowing.

With reſpect to the arrangement of Wood Plants,—the preference to be given to the *row*, or the *random* manner, reſts in ſome meaſure upon the nature and ſituation of the land to be ſtocked with plants. In boggy bottoms, and againſt ſteep hangs where the plow cannot be conveniently uſed in cleaning and cultivating the interſpaces during the infancy of the Wood, either method may be adopted; and if plants or cuttings are to be put in, the *quincunx* manner will be found preferable to any. But in ſound and more level ſituations, we cannot allow any liberty of choice: the *drill* manner is undoubtedly the moſt eligible; and with this method

* We have known an inſtance of tranſplanted Oaks remaining upon the ground ſo long as eight years before they began to move. And let us hear what MILLER ſays upon this ſubject; we have no reaſon to doubt his ſpeaking from his own experience, though he does not particularize it.—"When Oak-trees are cultivated with a view to profit, acorns ſhould be ſown where the trees are deſigned to grow; for thoſe which are tranſplanted will never arrive to the ſize of thoſe which ſtand where they are ſown, nor will they laſt near ſo long. For in ſome places where theſe high trees have been tranſplanted with the greateſt care, they have grown very faſt for ſeveral years after, yet are now decaying, when thoſe which remain in the places where they came up from the acorns, are ſtill very thriving, and have not the leaſt ſign of decay. Therefore, whoever deſigns to cultivate theſe trees for timber, ſhould never think of tranſplanting them, but ſow the acorns on the ſame ground where they are to grow; for timber of all thoſe trees which are tranſplanted is not near ſo valuable as that of the trees from acorns." (Art. QUERCUS.)

of

of raiſing a Wood we will begin to give our directions.

But before we enter upon the immediate ſubject, it will be proper to premiſe, that, previous to the commencement of any undertaking of this nature, it would be adviſeable that the ſpot or ſpots intended to be converted into Woodland, ſhould be determined upon, — the quantity of land aſcertained, — and the whole (whether it be entire or in detached parts, and whether it be ten acres or a hundred) divided into *annual ſowings*.

The exact number of theſe ſowings ſhould be regulated by the uſes for which the Underwood is intended. Thus, if, as in Surrey, ſtakes, edders, and hoops are ſaleable, the ſuite ought to conſiſt of eight or ten ſowings; or if, as in Kent, hop-poles are in demand, fourteen or fifteen ſowings will be required; and if, as in Yorkſhire, rails be wanted, or, as in Glouceſterſhire, cordwood be moſt marketable, eighteen or twenty ſowings will be neceſſary to produce a regular ſucceſſion of *annual falls*.

Many advantages will accrue from thus parcelling out the land into a ſuite of ſowings: the buſineſs, by being divided, will be rendered leſs burdenſome; a certain proportion being every year to be done, a regular ſet of hands will, in proper ſeaſon, be employed; and, by beginning upon a ſmall ſcale, the errors of the firſt year will be corrected in the practice of the ſecond, and thoſe of the ſecond in that of the third. The produce of the intervals will fall into regular courſe; and, when the whole is completed, the falls will follow

low each other in regular ſucceſſion. In ſhort, the entire buſineſs, from beginning to ending, becomes methodical, and, to a contemplative mind, cannot fail of becoming pleaſurable.

If it be found convenient to haſten the buſineſs, two or three diviſions may be ſown in one year, the ſeparate falls being marked by the firſt cutting. This, though by no means equal to regular ſowings correſponding to the intended falls, is much better than hurrying over the whole buſineſs at once; — a piece of raſhneſs which no man who works upon an extenſive ſcale ſhould be guilty of.

The principal objections to raiſing Woodlands in this progreſſive manner, is the extra trouble in fencing. However, if the ſowings lie detached from each other, the objection falls; if, on the contrary, they lie together, or in plots, let the entire plot be incloſed at once; and if it contain a number of ſowings, ſome ſub-diviſions will be neceſſary, and the annual ſowings of theſe ſub-diviſions may be fenced off with hurdles, or other temporary contrivance. If the adjoining land to be ſown be kept under the plow, little temporary fencing will be wanted.

It may be further neceſſary, before we enter upon the buſineſs of ſowing, to give ſome directions as to *fencing*; for, unleſs this be done effectually, that will be labour loſt.

In raiſing a Woodland from ſeeds, it is not only neceſſary to fence againſt cattle and ſheep, but againſt hares and rabbits alſo, eſpecially if they be numerous. Nothing leſs than a cloſe fence is adequate to this purpoſe. Where the ſoil will admit of a ditch being ſunk, a ditch, bank, and dwarf-

dwarf-paling, may be raiſed, in the manner already deſcribed under the article FENCES; except that, inſtead of a ſtake-and-edder-hedge, a cloſe paling be ſet upon the bank, in the following manner.

Before the bank be finiſhed, the poſts, about five feet long, ſhould be put down, their lower ends being firſt *charred* (ſuperficially burnt) to prevent their rotting. One rail is ſufficient. To this the upper ends of the pales are nailed, their lower ends having been previouſly driven into the crown of the bank. The pales ſhould be about three feet long, and ought to be made of Oak, or the bottom parts will ſoon rot off.

The fence is the ſtronger, and more effectual, if the ditch be made on the outer-ſide of it, and the paling ſet ſo as to lean outwards; but the Quick ſtands a much better chance of being reared on the inner-ſide of the paling, next to the ſeedling plants: therefore, the moſt prudent method of making a fence of this kind, is to make the ditch on the outſide, without an off-ſet, leaning the paling over it, and planting the Quick at the foot of the bank, on the inner-ſide: it then becomes what it ought always to be conſidered, — a part of the *Nurſery*.

This, however, is an expenſive fence, and is better ſuited to a ſmall than a large ſcale; and if, inſtead of the dwarf-paling, a cloſe rough ſtake-and-edder hedge be ſet upon the bank, it will (provided it be well made and carefully attended to from time to time, and the *muces*, if any be made, ſtopt with a rough buſh, and a ſtake driven through it),

continue

continue to be effectual againſt *hares* for a conſiderable time; and againſt *rabbits*, nothing leſs than death is effectual.

At length we come to treat particularly of the method of raiſing a Wood upon land ſufficiently ſound, and ſufficiently level to be cultivated conveniently with the plow.

The preparation of the ground.—If the ſoil be of a ſtiff clayey nature, it ſhould receive a whole year's fallow, as for wheat;—if light, a crop of turneps may be taken; at all events, it muſt be made perfectly clean before the tree-ſeeds be ſown, particularly from perennial root-weeds; for when once the ſeeds are ſown, all further opportunity of performing this neceſſary buſineſs is, in a great meaſure, loſt. If the ſituation be moiſt, the ſoil ſhould be gathered into wide lands; not high, but ſufficiently round to prevent ſurface-water from lodging upon them.

The time of ſowing is either autumn or ſpring. October may be called the fitteſt month for the autumnal ſowing, and March for the ſpring ſowing. A man of judgement, however, will attend to the ſeaſon, and to the ſtate of his ſoil, rather than to the Calendar.

The method of ſowing is this:—The land being in fine order, and the ſeaſon favourable, the whole ſurface ſhould be ſown with Corn or Pulſe, adapted to the ſeaſon of ſowing: if in autumn, Wheat or Rye may be choſen; in ſpring, Beans or Oats. Whichſoever of the three ſpecies of Corn is adopted, the quantity of ſeed ſhould be leſs than uſual, in order

order to give a free admiſſion of air, and prevent the crop from lodging.

The ſowing of the grain being completed, that of the Tree-ſeeds muſt be immediately ſet about. Theſe muſt be put in in lines, or drills, *acroſs* the lands, and in the manner beſt adapted to their reſpective natures: Acorns and Nuts ſhould be dibbled in, whilſt Keys and Berries ſhould be ſcattered in trenches or drills, drawn with the corner of a hoe, in the manner the gardeners ſow their peas.

The diſtance which we recommend to be obſerved between the rows is a quarter of a ſtatute-rod (four feet and one and an half inch). This may in theory, ſeem to be an unneceſſary preciſion; but in practice, there are many conveniencies accrue from it. In ſetting out the diſtance between the drills, a land-chain ſhould be uſed, and not a line, which is ſubject to be ſhortened or lengthened by the weather. A chain is readily divided into rods, and the quarters may be diſtinguiſhed by white paint, or other obvious marks. Stakes being driven at the ends of the drills, a line muſt be ſtretched, to dibble or draw the trenches by *.

If the plot be extenſive, *glades*, for the purpoſe of roads, muſt be left at convenient diſtances.

* It may be unneceſſary to obſerve, that the drills ſhould be exactly perpendicular to the range of ſtakes, otherwiſe the meaſurement will be falſe. If the ſowings or quarters could be ſo laid out, that the drills may be of ſome determinate length, as twenty rods for inſtance, the buſineſs of meaſuring would be rendered ſtill more eaſy.

The ſpecies of underwood muſt be determined by the conſumption, or demand, peculiar to the country in which it is intended to be raiſed. In Surrey, where ſtakes, edders, and hoops, are in demand, the Oak, the Hazel, and the Aſh, are eſteemed valuable as underwood. Upon the banks of the Wye, and the country round about, in Herefordſhire, Monmouthſhire, and Glouceſterſhire, where great quantities of charcoal are made for the iron-forges, Beech is the prevailing underwood; but whether from choice or from its thriving well upon thoſe bleak mountains, we cannot ſay. The Oak, the Aſh, the Beech, the Birch, the Hazel, the Box, may have their peculiar excellencies in different countries, and the choice is left to the perſon who has the care of the undertaking.

The ſpecies of timber has been already determined upon; the *Oak* being the only tree admiſſible into a *Wood*. The uſual ſpace allowed to timber-trees, ſtanding amongſt underwood, is thirty feet: two rods (thirty-three feet) will not be found, when the trees have fully formed their heads, too wide a ſpace. Therefore, every eighth drill at leaſt ſhould be ſown with acorns, dibbled in about ſix inches aſunder *.

The Oak and the Hazel, riſing the firſt year after ſowing, their reſpective drills will be ſufficiently diſcriminable at harveſt; but the keys of the

* For the particulars reſpecting the propagation of the ſeveral ſpecies under conſideration, ſee their reſpective genera in the ALPHABET OF PLANTS.

Aſh

Aſh lie two, and ſometimes three, years in the ground before they vegetate; and it will be convenient to have ſome diſtinguiſhing mark in the ſtubble, in order to prevent their being diſturbed in plowing the intervals after harveſt. To this end, if Beans be the foſtering crop, ſcatter a few Oats along the drill among the keys, the ſtubble of which will ſhew itſelf plainly among that of the Beans; and, on the contrary, if Oats be the crop, a line of Bean-ſtubble will have the ſame beneficial effect.

At harveſt the crop ſhould be reaped, not mown, and be carried off with all convenient care. Between harveſt and winter, a pair of furrows ſhould be laid back to back, in the middle of each interval, for the purpoſes of meliorating the ſoil for the next year's crop, and of laying the ſeedling plants dry;—whilſt the ſtubble of the unplowed ground on each ſide of the drills, will keep them warm during winter.

The next year's crop may be Potatoes, Cabbages, Turneps; or, if the firſt was Corn, this may be Beans; or, if Beans, Wheat drilled in the Tullian manner.

All that the tree-drills will require this year, will be to be kept perfectly clean, by weeding and hand-hoeing.

In the ſpring of the third year, the drills which roſe the firſt year muſt be looked over, and the vacancies filled up from the parts where the plants are ſuperfluous: but thoſe of the Aſh ſhould be deferred until the fourth year.

The whole ſhould afterwards be looked over from time to time; and this, with cultivating the intervals, and keeping the drills free from weeds, will be all that will be neceſſary until the tops of the plants begin to interfere.

However, if ſeedlings be wanted for the purpoſe of laying into hedges, or if tranſplanted plants be ſaleable in the country, the ſuperfluous ſeedlings may be drawn out of the drills, in the ſpring of the third or fourth year, and tranſplanted into ſome vacant ground.—None can be more proper, nor any ſo convenient, as the contiguous intervals, in which they may remain two or three years without injury to the drills, and may afford a profitable crop; ſubject, however, to this diſadvantage, the ſpade muſt be made uſe of inſtead of the plow, in cleaning the interſpaces. Nevertheleſs, a ſtock of plants of this kind are very valuable, not only as articles of ſale, but for clumps, and ſheltering plantations.

Further, with reſpect to the crops.—Theſe may be continued ſo long as the ſeedling plants remain within a narrow compaſs; ſo that the intervals can be cultivated to advantage, and without injury to the plants.

The crops ſhould, of courſe, be varied, and the ſoil ought to receive its proportion, at leaſt, of dung, which would be moſt properly carried on for the Potatoe-crop.

If the ſoil be tolerably good, crops thus managed may anſwer for ſeveral years. If the produce pay

but

but the expence of plowing, and other contingent charges, the advantage of ſtirring and keeping the intervals clean, will be conſiderable; whilſt in an expoſed ſituation the crops will be a means of ſaving the tree-plants from hares and rabbits.

Whenever the crops are diſcontinued, the intervals muſt ſtill be kept ſtirred; alternately throwing the mould to the roots of the plants, and gathering it into a ridge in the middle of the interval. The moſt complete manner of doing this, is to ſplit the intervals at the approach of winter, to preſerve the roots of the plants from the froſt; gather in the ſpring, to check the weeds, and give a freſh ſupply of air;—ſplit at Midſummer, to keep the roots from the drought; gather again in autumn, if neceſſary; and ſplit, as before, againſt winter. The ſpring and the Midſummer plowings ſhould be continued ſo long as a plow can paſs between the plants.

The firſt cutting muſt be timed by the plants themſelves. Whenever the rows of Oaks intended for timbers are in danger of being drawn up too ſlender for their height, by reaſon of their being too much crowded by the interference of the rows, the whole muſt be cut down to within a handbreadth of the ground; except the Oaks intended for ſtands, which muſt now be ſet out at about two rods diſtance from each other, and as nearly a quincunx as plants moſt proper for the purpoſe will allow.

Strength, cleanneſs, and upward tendency, are the criterions by which the choice of theſe ought to be determined upon. If more than one plant of this deſcription ſtand near the point deſired, it is adviſeable not to take them down the firſt fall (provided they do not interfere too cloſely with each other), but to let them remain, in order to guard againſt accidents, and to afford a future opportunity of making a ſecond choice, when the plants are arrived at a more advanced ſtate.

The young ſtands will require to be more or leſs *pruned*: their leaders muſt be particularly attended to, the lower ſide-ſhoots taken off, and their heads reduced in ſuch a manner as to prevent their being rendered top-heavy.

However, if the firſt fall of underwood be made in due time, their heads in general will want but little pruning; for it is not in this caſe as in that of tranſplanting, where the roots have freſh ſhoots to make, and a freſh ſource of food to ſeek: here they are fully prepared to ſend up the neceſſary ſupplies, and the more top there is to promote the aſcent, the quicker progreſs the plants will be enabled to make.

It is therefore very imprudent to defer the firſt fall until the plants be drawn up too ſlender to bear a well-ſized top: We have known young Oaklings, raiſed in a manner ſimilar to that which is here deſcribed, drawn up ſo *weedy* by injudicious treatment, as not to be able to bear the ſmalleſt top without ſtooping under the weight of their own leaves;

leaves; a ſhower of ſnow, falling without wind, would bow them to the ground.

The pruning being completed, the ſtubs muſt be cleared, and the fences repaired, and ſedulouſly attended to. The young timbers muſt alſo be attended to from time to time, and the pruning repeated as often as may be found neceſſary.

The ſecond fall muſt be timed according to the *ware* which the country calls for; with this proviſo, however, that the timber-ſtands be not injured by being crouded amongſt the underwood; for, rather than this ſhould be the caſe, the ſecond fall ſhould take place, although the Coppice-wood may not have reached the moſt profitable ſtate.

After the ſecond and every *ſucceeding fall* of underwood, the timbers ſhould be gone over, their leaders kept ſingle, and their heads ſet up, until the ſtems have arrived at about twenty feet (more or leſs, as accidents, or their reſpective tendencies, may happen to determine), when their heads ſhould be permitted to ſpread, and take their own natural form.

So ſoon as the branches are firmly eſtabliſhed (which may happen in ten, fifteen, or twenty years from the laſt pruning, ſooner or later, according to the ſoil, ſituation, and other circumſtances) *the heads ſhould be pruned.*

In doing this, the leader muſt be ſhortened, to check the upward growth of the tree, and the main ſtrength of the head thrown, as much as may be, into one principal arm, in order to obtain

with greater certainty the important end to which *Wood* timber is more peculiarly applicable

If the heads can be all trained in one direction, the interſpaces will be more equally divided; and if this direction can be pointed towards the ſun, the quality of the timber will, by that means, be conſiderably improved.

Next, as to raiſing a Wood againſt a hang too ſteep to be cultivated conveniently with the plow, after the Wood-ſeeds are ſown; but which may, nevertheleſs, be fallowed, and brought into proper tilth by the turn-wreſt plow; namely, a plow which turns the furrows all one way, and which is in common uſe upon the hills of Kent and Surrey:

Under theſe circumſtances, the planter has it in choice, whether he will ſow ſeeds,—or put in ſeedlings,—or tranſplanted plants. If he adopt the firſt, the expence of cleaning by hand will fall heavy; and if the laſt, the labour of the Nurſery will not be leſs burdenſome. The middle path is therefore moſt adviſeable.

The ſeedling plants may, in general, be permitted to remain until the third or fourth year in the ſeed-bed; by which time they will have acquired ſufficient ſtrength and ſtature to ſtruggle with the lower order of weeds, whilſt thoſe of a more aſpiring nature may be kept under, at a reaſonable expence.

The arrangement of theſe plants may either be promiſcuous, or in drills ſimilar to thoſe mentioned aforegoing. After the plants are in, a few acorns

may

may be dibbled in the interſpaces, that ſucceſs may be rendered the more ſecure.

The choice of underwood, and the after-management, under theſe circumſtances, muſt be ſubject to the ſame rules as under thoſe already mentioned.

With reſpect to hangs ſo very ſteep that even the turn-wreſt plow cannot be uſed with ſafety in preparing the ſoil, ſeedling plants may be put in without any previous preparations, except that of clearing away rubbiſh, and burning off the weeds and rough graſs with which the ſurface may be encumbered. In this caſe, the number of plants, and the quantity of acorns, muſt be greater than when the ground has been prepared by a fallow.

We omit ſaying any thing in this ſection reſpecting bogs which are too rotten to be cultivated with the plow; becauſe, in ſuch ſituations, if the Oak would flouriſh, ſingle trees are liable to be blown up by the roots, by reaſon of the inſtability of the ſoil in which they are rooted, and which renders ſuch ſituations moſt eligible for COPPICES.

It may be unneceſſary to add, that, if the undertaking be large, and the ſcite comprize the ſeveral deſcriptions of ſituation here treated of, the mode muſt vary with the ſoil and ſituation; whilſt glades muſt be left at diſtances moſt commodious and in directions beſt ſuited to the general deſign.

GROVES.

GROVES.

THE TIMBER-GROVE is the prevailing *plantation* of modern time. WOODS or COPPICES are ſeldom attempted; indeed, until of late years, clumps of Scotch Firs ſeem to have engaged, in a great meaſure, the attention of the planter.

The Scotch Fir, however, is one of the laſt trees that ought to engage the attention of the *Engliſh* planter; and ſhould be invariably excluded every ſoil and ſituation in which any other timber-tree can be made to flouriſh. The North aſpect of bleak and barren heights is the only ſituation in which it ought to be tolerated; and even there, the Norway Spruce, and the Larch, will ſometimes outbrave it. In better ſoils and milder ſituation, the wood of the Scotch Fir is worthleſs, and its growth ſo licentious as to over-run every thing which grows in its immediate neighbourhood: this renders it wholly unfit to be aſſociated with other timber-trees: we ſhall therefore conſider it ſeparately at the cloſe of this ſection.

The ſpecies of timber-trees which we beg leave to recommend to the planter's notice have been already mentioned at the opening of this chapter: They conſiſt of

The Oak,
The Aſh,
The Elm,
The Beech,
The Pines, and
The Aquatics.

Of

Of the two tribes laſt mentioned, we chiefly recommend

The Larch,
The Spruce Fir,
The Weymouth Pine *,
The Poplar,
The Willow,
The Alder.

To this liſt may be added,

The Cheſnut,
The Walnut,
The Cherry,

as ſubſtitutes for the Oak and the Beech; and the two latter as humble repreſentatives of the princely Mahogany.

Reſpecting the *Elm* an error prevails: MILLER and HANBURY tell us (ſpeaking more particularly of the Fine-leaved ſort), that it will not flouriſh in cloſe plantations. Experience, however, leads us to be of a contrary opinion. How often do we ſee two Elms ſtanding ſo cloſe together that a bird could not fly through between them, yet both of them equally well ſtemmed: indeed, the ſhoots of the Elm will interweave with each other in a manner we ſeldom ſee in any other ſpecies of tree. In clumps and cloſe groves too we have ſeen them thrive abundantly. It is obſervable, however, that in theſe ſituations, their ſtems running up clean and in a great meaſure free from ſide-ſhoots, the timber takes a different nature from that which is

* There may be other individuals of the Pinus tribe, as the Silver and Balm-of-Gilead Firs, &c. which may be equally valuable with the three ſpecies here enumerated; but we cannot ſpeak ſo particularly from our own knowledge concerning them as we can of the Larch, the Spruce, and the Weymouth, whoſe woods we know to be of a good quality.

raiſed

raiſed in more expoſed places;—where the lateral ſhoots being numerous, and being lopped off from time to time, the ſtems become knotty; by which means the natural tenacity, in which the peculiar excellency of the timber of the Elm entirely conſiſts, is conſiderably increaſed.

In a Grove, the *Aſh* may be termed an *outſide* tree; plow-beams, ſhafts, fellies, and harrow-bulls requiring a curvature which generally takes place in the outer-rows of a cloſe plantation. The Aſh, however, muſt not be excluded a central ſituation, as a ſtraightneſs of grain is frequently deſirable.

The *Oak* (except for the purpoſe of ſhip-timber, &c.) the *Beech*, the *Cheſnut*, and the *Pinus-tribe*, are *inſide* trees; the carpenter, the cooper, and the turner, requiring a cleanneſs of grain.

With reſpect to *ſoil and ſituation*, the Elm, the Cheſnut, the Walnut, and the Cherry, require a good ſoil and mild ſituation; the Aquatics ſhould be confined to moiſt low grounds; and the Beech and the Pines to bleak mountainous places; whilſt the Oak and the Aſh can accommodate themſelves to almoſt any ſoil or ſituation.

We now come to the *method of raiſing* the ſeveral ſpecies of Grove-timbers. The Oak, the Aſh, the coarſe-leaved Elm, the Beech, the Cheſnut, the Walnut, and the Cherry, may be raiſed in drills in the manner deſcribed in the preceding ſection, without any variation, except in the method of training. The Pines being of a hazardous nature when in their infant ſtate, it is adviſeable to raiſe them

them in ſeed-beds, and plant them out as ſeedling plants. The Fine-leaved Elm muſt be raiſed from layers; and the Aquatics from cuttings *.

The *method of training* Grove-timbers raiſed in drills, is this: If ſeedling plants be wanted, the rows may be thinned, the third and fourth years, until the remaining plants ſtand from twelve to eighteen inches apart. This done, nothing more will be requiſite until ſuch time as ſome kind of *ware* can be cut out; as edders, hoops, ſtakes, &c.

The plants having reached this ſtage of their growth, the rows ſhould be gone over every winter, and all the *underling* plants cut out within the ground (if practicable), which will in general kill the roots and ſave the expence of grubbing. If the remaining plants are not already too much crouded, the *ſtrugglers* ought to be left, in order to ſupport and aſſiſt in drawing up with greater certainty the *conquering* plants.

This conduct ſhould be obſerved from the time of the firſt cutting until the trees are ſet out at diſtances beſt ſuited to their reſpective natures, and according to the accidental tendency which they happened to take in riſing. For, in thinning a timber-grove, little or no regard muſt be had to a regularity of diſtance at the root; an equal diſtribution of head-room meriting a more particular attention.

* For the method of *planting* a Timber-Grove, ſee the INTRODUCTION, p. 29.

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The ſelection ought to be directed by the ſtrength of the plants, and the uniformity of the canopy, taken jointly: for a chaſm in what may be called the foliage of a grove, is ſimilar to a vacancy in a coppice, or an unproductive patch in a field of corn. The leaves are as labourers; and every leaf deficient is a labourer loſt. The pruner's eye ought therefore to be directed towards the tops, rather than to the roots, of his plants.

There are other things obſervable in *thinning* a grove. If it be thinned too faſt, its upward growth will be checked, and the length of ſtem curtailed; and if, on the other hand, the thinning be neglected, or be performed too leiſurely, the plants, eſpecially in their taller ſtate, will be rendered too ſlender and head-leſs, and thereby become liable to laſh each other's tops with every blaſt of wind. This evil is called *whipping of tops*, and many fine groves, eſpecially of the pine-tribe, have been very materially injured by it. Whenever two trees are ſeen to be engaged in this ſort of conflict, one of them ſhould be taken down without loſs of time; otherwiſe it will probably prove fatal to them both.

If the thinning be conducted with judgment, little *pruning* will be neceſſary; ſome, however, will be found requiſite: ſtrong maſter plants are liable to throw out ſide-branches, to the annoyance of their neighbours: thoſe ſhould be taken off in time, and all dead branches ſhould be removed, eſpecially thoſe of the pines; otherwiſe the

the heart of the timber will be rendered coarſe, knotty, and of a bad quality. The leaders ſhould alſo have due attention paid to them; particularly if a group of foul-headed plants happen to fall together; for in this caſe, if nature be not aſſiſted, a timber-tree will in the end be wanted.

This method of training holds good whether the grove be raiſed from ſeeds, immediately, or from ſeedling, or other plants; and whether theſe be arranged in drills, or in the promiſcuous manner; provided the body of the grove be formed of one entire ſpecies of timber-tree; for of the method of raiſing that ſpecies of grove we have hitherto been treating.

With regard to *miſcellaneous groves*, we have ſeen ſo many evil effects ariſing from injudicious mixtures of timber-trees, that we are inclined to condemn, *as unprofitable*, all mixtures whatever. It may be argued, however, that by aſſociating trees of different natures, the ſoil will be made the moſt of; under an idea that each ſpecies of plant has its own favourite food: and, indeed, it is well known that corn flouriſhes after graſs, and graſs after corn; that the Aſh will thrive after the Oak, and the Oak after the Aſh, in a more profitable manner than any one of theſe plants would do if propagated repeatedly upon the ſame ſpot of ſoil.

This leads to an improvement in the method of raiſing a Grove of Oaks; and the ſame method is applicable to any other ſpecies of tree. Inſtead of ſowing every drill with acorns, let every ſecond be ſown with the ſeeds of a tree of a different nature; and, under ordinary circumſtances, with

thoſe of the Aſh: its ſeeds are eaſily procured, and as underwood, no tree is applicable to ſo many uſeful purpoſes.

In this caſe, the method of training is nearly the ſame as that already deſcribed; except that, throughout, the Aſh muſt be made ſubſervient to the Oak: if it riſe too faſt, it muſt be cut down to the ſtub as underwood: if aſhen ſtands be left to draw up the young Oaks, they muſt be lopt, or taken down the moment they aſpire to a ſuperiority, or give the neighbouring plants an improper tendency.

When the Oaks have acquired a ſufficient length of ſtem, and have made good their canopy, the aſſiſtance of the Aſhes will be no longer wanted, nor will they be any longer valuable as underwood; they ought therefore to be entirely removed, and their ſtubs grubbed up: and thus, the Oaks will receive at once a freſh ſupply of air and paſturage.

In bleak ſituations, a quicker-growing and better-feathered plant than the Aſh, affords more valuable protection: the Scotch Fir, kept under due ſubjection, is eligible in this caſe. The Furze is ſometimes made uſe of for this purpoſe: but the plant which we wiſh to recommend in preference to either of theſe is the Broom; as being leſs miſchievous, and at the ſame time equally efficacious. Its ſeeds are readily procured; its growth is rapid; it will brave the bleakeſt aſpect; and the natural ſoftneſs of its foliage renders it pleaſant to work amongſt, even in its talleſt and moſt crowded ſtate.

His Grace the DUKE of PORTLAND,---whoſe plantations, *alone*, are ſufficient to immortalize his character, and hand down to ſucceeding generations his Grace's public and private virtues,---finds, that upon the bleak ſandy ſwells of Nottingham Foreſt, the Birch affords the moſt friendly protection to the Oak: and, when we conſider the eaſy manner in which this plant may be raiſed, the quickneſs of its growth, the ſhelter it gives, and its value in many places as an underwood, we muſt allow great merit in the choice.

His Grace's plantations being carried on upon a ſcale which is truly magnificent, and it being in the conducting of great undertakings that the human invention is raiſed to the higheſt pitch, it would be unpardonable, in a work of this nature, to omit inſerting the following Letter from Mr. SPEECHLY, his Grace's Gardener, to Dr. HUNTER, Editor of a late edition of EVELYN's *Sylva*, deſcribing the manner in which his Grace's plantations are conducted.

We introduce it in this place, as the ſtyle of planting it deſcribes is peculiarly adapted to raiſing GROVES againſt HANGS, or acclivities of hills. The candour contained in the Letter itſelf precludes the neceſſity of apprizing our readers, that it is not calculated for a STRONG LEVEL COUNTRY, nor for raiſing WOODS in any ſoil or ſituation.

——"Few Noblemen plant more than his Grace the Duke of Portland; and I think I may ſay, without vanity, none with greater ſucceſs. But as no man ſhould think of planting in the very extenſive manner that we do, before he is provided with well-ſtocked nurſeries, it may not be amiſs, before I proceed further, to give a ſhort ſketch of that neceſſary buſineſs, as alſo to inform you of the ſoil and ſituation of our ſeat of planting. The greateſt part of our plantation is on that ſoil which in Nottinghamſhire is generally diſtinguiſhed by the name of Foreſt-land. It is a continuation of hills and dales; in ſome places the hills are very ſteep and high; but in general the aſcents are gentle and eaſy.

"The ſoil is compoſed of a mixture of ſand and gravel; the hills abound moſt with the latter, and the vallies with the former, as the ſmaller particles are by the wind and rains brought, from time to time, from the high grounds to the lower. It is on the hilly grounds we make our plantations, which in time will make the vallies of much greater value, on account of the ſhelter they will afford.

"After his Grace has fixed on ſuch a part of this Foreſt-land as he intends to have planted, ſome well-ſituated valley is choſen (as near the center of the intended plantations as may be) for the purpoſe of a nurſery; if this valley is ſurrounded with hills on all ſides but the ſouth, ſo much the better. After having allotted a piece of ground, conſiſting of as many acres as is convenient for the purpoſe, it is fenced about in ſuch a manner as to keep out all obnoxious animals. At either end of the nurſery are large boarded gates, as alſo a walk down the middle, wide enough to admit carriages to go through, which we find exceedingly convenient when we remove the young trees from thence to the plantations. After the fence is completed, the whole is trenched (except the walk in the middle) about twenty inches deep, which work may be done for about three pounds ten ſhillings, or four pounds, per acre, according as the land is more or leſs gravelly; this work is beſt done in the ſpring when the planting ſeaſon is over. If, after the trenching, two or three chaldrons of lime be laid on an acre, the land will produce an excellent crop either of cabbages or turnips, which being eaten off by ſheep in the autumn, will make the land in fine order for all ſorts of tree-ſeeds: but as the Oak is the ſort of tree we cultivate in general, I ſhall confine myſelf particularly to our preſent method of raiſing and managing that moſt valuable ſpecies. In the autumn, after the cabbage or turnips are eaten off, the ground will require nothing more than a common digging. So ſoon as the acorns fall, after being provided with a good quantity, we ſow them in the following manner: Draw

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drills with a hoe in the ſame manner as is practiſed for peaſe, and ſow the acorns therein ſo thick as nearly to touch each other, and leave the ſpace of one foot between row and row, and between every fifth row leave the ſpace of two feet for the alleys. While the acorns are in the ground great care muſt be taken to keep them from vermin, which would very often make great havock amongſt the beds, if not timely prevented. Let this caution ſerve for moſt other ſorts of tree-ſeeds.

" After the acorns are come up, the beds will require only to be kept clean from weeds till they want thinning; and as the plants frequently grow more in one wet ſeaſon, where the ſoil is tolerably good, than in two dry ones, where the ſoil is but indifferent, the time for doing this is beſt aſcertained by obſerving when the tops of the rows meet. Our rule is to thin them then, which we do by taking away one row on each ſide the middlemoſt, which leaves the remaining three rows the ſame diſtance apart as the breadth of the alleys. In taking up theſe rows we ought to be anxiouſly careful neither to injure the roots of the plants removed, nor of thoſe left on each ſide. The reſt of the young Oaks being now left in rows at two feet apart, we let them again ſtand till their tops meet; then take up every other row, and leave the reſt in rows four feet aſunder, till they arrive to the height of about five feet, which is full as large a ſize as we ever wiſh to plant. In taking up the two laſt ſizes, our method is to dig a trench at the end of each row full two feet deep, then undermine the plants, and let them fall into the trench with their roots entire.

" And here let me obſerve, that much, very much, of their future ſucceſs depends on this point of their being well taken up. I declare that I ſhould form greater hopes from one hundred plants well taken up and planted, than from ten times that number taken up and planted in a random manner; beſides, the loſs of the plants makes the worſt method the moſt expenſive.

" But before I leave this account of our method of raiſing Oaks, I ſhall juſt beg leave to obſerve, that we are not very particular in the choice of acorns; in my own opinion, it matters not from what tree the acorns are gathered, provided they are good; for although there ſeems to be a variety of the Engliſh Oak, in reſpect to the form of the leaf and fruit, alſo their coming into leaf at different ſeaſons, with ſome other marks of diſtinction, yet I am of opinion that they will all make good timber-trees if properly managed. It is natural to ſuppoſe that a tree will grow low and ſpreading in a hedge-row; on the contrary, it is very improbable that many ſhould grow ſo in a

thick wood, where, in general, they draw one another up ſtraight and tall. And I have obſerved that the ſame diſtinctions hold good amongſt our large timber-trees in the woods, as in the low-ſpreading Oaks in the hedge-rows.

"Though I have not as yet taken notice of any other ſort of tree but the Oak, yet we have a great regard for, and raiſe great quantities of, Beech, Larch, Spaniſh Cheſnut, Weymouth Pine, and all ſorts of Firs, the Scotch excepted, as well as many other kinds, by way of thickening the plantations while young; among which the Birch has hitherto been in the greateſt eſtimation, it being a quick-growing tree, and taking the lead of moſt other ſorts on our poor foreſt hills; and as we have an inexhauſtible ſpring of them in the woods, where they riſe of themſelves in abundance from ſeed, we at all times plant them plentifully of different ſizes. As to the Elm and Aſh, we plant but few of them on the Foreſt, though we raiſe great quantities of both, but particularly the Aſh, which being an uſeful wood (but a bad neighbour amongſt the Oaks) we plant in places apart by itſelf. I ſhall diſmiſs this ſubject concerning the management of our nurſeries, after ſaying a word or two relating to pruning: we go over the whole of the young trees in the nurſery every winter; but in this we do little more than ſhorten the ſtrong ſide-ſhoots, and take off one of all ſuch as have double leads.

"Having thus pointed out the mode of forming and managing our nurſeries, I ſhall now proceed to the plantations. The ſize of the plantations, at firſt beginning, muſt be in proportion to the ſtock of young trees in the nurſery; for to undertake to plant more ground than we have young trees to go through with for thick plantations, would turn to poor account on our foreſt hills. We always plant thick, as well as ſow plentifully at the ſame time, provided it be a ſeaſon in which acorns can be had; ſo that all our plantations anſwer in a few years as nurſeries to ſucceeding plantations.

"As to the form of the plantations, they are very irregular; we ſometimes follow a chain of hills to a very great diſtance; ſo that what we plant in one ſeaſon, which perhaps is ſixty, eighty, and ſometimes an hundred acres, is no more than a part of one great deſign.

"If the ground intended to be planted has not already been got into order for that purpoſe, it ſhould be fenced about at leaſt a twelvemonth before it is wanted to plant on, and immediately got into order for a crop of turnips; two chaldrons of lime being laid on an acre will be of great ſervice, as it will not only be a means of procuring a better crop of turnips, but will bind

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the land afterwards, and make it fall heavy, which is of great uſe when it comes to be planted, as ſome of the foreſt land is ſo exceedingly light as to be liable to be blown from the roots of the young trees after planting: therefore we find it to be in the beſt order for planting about two years after it has been plowed up from paſture, before the turf is too far gone to a ſtate of decay. It will be neceſſary to have a part of the turnips eaten off ſoon in the autumn, in order to get the ground into readineſs for early planting; for we find the forward planting generally ſucceeds the beſt.

"After the turnips are eaten off, we plow the ground with a double-furrow trenching plow made for that purpoſe, which, drawn by ſix horſes, turns up the ground completely to the depth of twelve or thirteen inches: this deep plowing is of great ſervice to the plants at the firſt, and alſo ſaves a great deal of trouble in making the holes. After the plowing is finiſhed, we divide the ground into quarters for the planting by ridings. It will be a difficult matter to deſcribe the laying out the ground for this purpoſe, eſpecially where there is ſuch a variety of land as we have on the Foreſt; much depends on the taſte of the perſon employed in this office. Between the hills, towards the outſides of the plantations, we frequently leave the ridings from ſixty to an hundred yards in breadth, and contract them towards the middle of the woods, to the breadth of ten or twelve yards; and on the tops of the hills where there are plains, we frequently leave lawns of an acre or two, which makes a pleaſing variety.

"In ſome of them we plant the Cedar of Libanus at good diſtances, ſo as to form irregular groves; and this ſort of tree ſeems to thrive to admiration on the foreſt-land. On the outſides of the woods, next to the ridings, we plant Evergreens, as Hollies, Laurels, Yews, Junipers, &c. and theſe we diſpoſe of in patches, ſometimes the ſeveral ſorts entire, at other times we intermix them for variety; but not ſo as to make a regular ſcreen or edging. Our deſign in the diſtribution of theſe plants, is to make the outſides of the woods appear as if ſcalloped with Evergreens intermixed ſometimes with rare trees, as the *Liriondendron Tulipifera*, or Virginian Tulip-tree, &c.

"After the ground is laid out into quarters for planting, we aſſign certain parts to Beech, Larch, Spaniſh Cheſnuts &c. Theſe we plant in irregular patches here and there, throughout the plantations, which, when the trees are in leaf, has the moſt pleaſing effect, on account of the diverſity of ſhades; eſpecially in ſuch parts of the Foreſt where four, five, and ſometimes more of the large hill-points meet in the ſame valley, and tend, as it were, to the ſame center.

" After thoſe patches are planted, or marked out for that purpoſe, we then proceed to the planting in general. We always begin with planting the largeſt young trees of every ſort, and end our work with thoſe of the ſmalleſt ſize: were we to proceed otherwiſe, the making a hole for a larger-ſized tree, after the ſmall ones are thick planted, would cauſe the greateſt confuſion.

" Birch is generally the ſort of tree we make our beginning with, which we find will bear to be removed with great ſafety, at the height of ſix or ſeven feet, though we commonly plant rather under than at that ſize. This ſort of tree we are always ſupplied with from our plantations of five or ſix years growth. But before I proceed to the taking them up, it will be proper to inform you, that in the planting ſeaſon we divide our hands into four claſſes, which we term Takers-up, Pruners, Carriers, and Planters; and here I ſhall deſcribe the ſeveral methods of doing this work.

" Firſt, in taking up we have the ſame care to take up with good roots in the plantations, as was recommended in the nurſery, though we cannot purſue the ſame method; but in both places, ſo ſoon as the plants are taken up we bed them in the ground in the following manner: Dig a trench at leaſt fifteen inches deep, and ſet the young trees therein with their tops aſlant, covering the roots well as we go along, and almoſt half way up the ſtem of the plants, with the earth that comes out of a ſecond trench, which we fill in the like manner, and ſo proceed on till we have a load more or leſs in a heap, as may be convenient to the place from whence they were taken. In our light ſoil this trouble is but little, and we always have our plants ſecure, both from their roots drying, and their ſuffering by froſt. We have a low-wheeled waggon to carry them from the heaps, where they are bedded, to the pruners, and generally take two loads every other day. When they arrive, the planters, pruners, &c. all aſſiſt to bed them there, in the ſame manner as before deſcribed. We have a portable ſhed for the pruners to work under, which is alſo convenient for the reſt of the work-people to take ſhelter under in ſtormy weather. From the above heaps the plants are taken only ſo faſt as they are wanted for pruning, which work we thus perform; Cut off all the branches cloſe to the ſtem to about half the height of the plant, ſhortening the reſt of the top to a conical form in proportion to the ſize of the plant; and in pruning of the roots, we only cut off the extreme parts that have been bruiſed by the taking up, or ſuch as have been damaged by accident, wiſhing at all times to plant with as much root as can be had.

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" As ſoon as they are pruned they are taken to the planters, by the carriers, who are generally a ſet of boys, with ſome of the worſt of the labourers. The planters go in pairs; one makes the holes, and the other ſets and treads the plants faſt, which work they commonly do by turns. In making of the holes we always take care to throw out all the bad ſoil that comes from the bottom: if the planting be on the ſide of a hill, we lay the bad ſoil on the lower ſide of the hole, ſo as to form a kind of baſon; for without this care our plants would loſe the advantage of ſuch rains as fall haſtily. We at all times make the holes ſufficiently large, which is done with great eaſe after our deep plowing.

" Before we ſet the plant, we throw a few ſpadefuls of the top ſoil into the hole, ſetting the plant thereon with its top rather inclining to the weſt; then fill up the hole with the beſt top ſoil, taking care that it cloſes well with the roots, leaving no part hollow. When the hole is well filled up, one of the planters treads and faſtens the tree firmly with his feet, while his partner proceeds to make the next hole.

" The faſtening a tree well is a material article in planting; for if it once becomes looſe, the continual motion which the wind occaſions, is ſure to deſtroy the fibres as faſt as they are produced, which muſt end in the deſtruction of the plant, if not prevented. It is to guard againſt this inconveniency that we take off ſo much of the top, as has been deſcribed in the article of pruning.

" We plant about three or four hundred Birches of the large ſize on an acre, and nearly the ſame number of the firſt-ſized Oaks; we alſo plant here and there a Beech, Larch, Spaniſh Cheſnut, &c. excluſive of the patches of the ſaid ſorts of trees before planted. We then proceed to plant plentifully of the ſecond and leſſer-ſized Oaks; and laſt of all a great number of the ſmall Birches, which are procured from the woods at about three-ſhillings or three ſhillings and ſixpence per thouſand: theſe we remove to the ſucceeding plantations after the term of five or ſix years. Of the ſeveral ſizes of the different kinds of trees, we generally plant upwards of two thouſand plants upon an acre of land, all in an irregular manner.

" After the planting is finiſhed we then ſow the acorns (provided it be a ſeaſon that they can be had) all over the plantation, except amongſt the Beech, Larch, &c. in the aforeſaid patches. Great care ſhould be taken to preſerve the acorns intended for this purpoſe, as they are very ſubject to ſprout, eſpecially ſoon after gathering; the beſt method is to lay them thin in a dry airy place, and give them frequent turnings. We ſow theſe

acorns in ſhort drills of about a foot in length, which work is done very readily by two men, one with the acorns, the other with a hoe for the purpoſe of making the drills and covering the ſeed.

" We are of opinion that the plants produced from theſe acorns will at laſt make the beſt trees; however, I will not pretend to ſay how that may be, as the Oaks, tranſplanted ſmall, grow equally well for a number of years: but it is probable that a tree with its tap-root undiſturbed may, in the end, grow to a much larger ſize.

" After the whole is finiſhed to a convenient diſtance round the pruners, we then remove their ſhed to a ſecond ſtation, and there proceed in the like manner; and ſo on till the whole be finiſhed.

" It would be well to get the planting done by the end of February, eſpecially for trees of the deciduous kind; but from the diſappointments we meet with, occaſioned by the weather, we are ſometimes detained to a later ſeaſon.

" I have ſeveral times made trial of twelve or fourteen kinds of American Oaks ſent over to his Grace in great quantities. I ſowed them in the nurſery, and alſo in the beſt and moſt ſheltered parts of the plantations. In both places they come up very plentifully; but I now find that ſeveral of the ſorts will not ſtand the ſeverity of our winters, and thoſe that do make ſo ſmall a progreſs as to promiſe no other encouragement than to be kept as curioſities.

" Towards the end of April, when the ground is moiſt, it will be a great ſervice to go over the whole plantations, and faſten all ſuch trees as are become looſe ſince their planting: after this, nothing more will be required till the month of June, when we again go over the whole with hoes, cutting off only the tall-growing weeds; for the ſooner the ground gets covered with graſs, in our light ſoil, ſo much the better.

" I own there is ſomething ſlovenly in the appearance of this method, and on ſome lands I would recommend keeping the ground clean hoed for ſome time at firſt, as alſo planting in rows, which in that caſe would be neceſſary. More than once I have tried this method on our foreſt-hills, and always found, after every hoeing, that the ſoil was taken away by the ſucceeding winds into the valleys.

" Beſides this inconvenience, the reflection of our ſandy ſoil is ſo very great, that we find the plants ſtand a dry ſeaſon much better in our preſent method, than in the former: and whoever fancies that graſs will choak and deſtroy ſeedling Oaks, will, after a few years trial, find himſelf agreeably miſtaken: I have

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even recommended the ſowing the poorer parts of the hills with furze or whin-ſeed, as ſoon as they are planted: we have ſometimes permitted the furze to grow in the plantations by way of ſhelter for the game, which though it ſeems to choak and overgrow the Oaks for ſome time, yet after a few years we commonly find the beſt plants in the ſtrongeſt beds of whins. This ſhews how acceptable ſhelter is to the Oak whilſt young; and experience ſhews us that the Oak would make but a ſlow progreſs on the foreſt-hills for a number of years at the firſt, were it not for ſome kind nurſes; and the Birch ſeems to anſwer that purpoſe the beſt, as I have already obſerved.

"The ſeveral ſorts of Fir-trees, from appearance, ſeem to promiſe a greater ſhelter; but on the foreſt-land they do not grow ſo faſt as the former, and what is worſe, the Oak will not thrive under them, as they do immediately under the Birch.

"Where a plantation is on a plain, a ſcreen of Firs for its boundary is of ſingular uſe, but the ſituation of the foreſt-land denies us this advantage.

"We continue to cut down the tall-growing weeds two or three times the firſt ſummer, and perhaps once the next, or ſecond ſeaſon after planting; which is all that we do in reſpect to cleaning. The next winter after planting, we fill up the places with freſh plants where they have miſcarried; after which there is little to be done till about the fourth or fifth year; by which time the ſmall-ſized Birch, and ſeedling Oaks, will be grown to a proper ſize for tranſplanting: in the thinning of theſe due care muſt be had not to take too many away in one ſeaſon, but, being properly managed, there will be a ſupply of plants for at leaſt half a dozen years to come.

"About the ſame time that the leſſer-ſized Birch wants thinning, the large ones will require to have their lower branches taken off, ſo as to keep them from injuring the Oaks; and this is the firſt profit of our plantations, the Birch-wood being readily bought up by the Broom-makers. This pruning we continue as often as required, till the Birches are grown to a ſufficient ſize to make rails for fencing; we then cut them down to make room for their betters.

"By this time the Oaks will be grown to the height of twelve or fourteen feet, when they draw themſelves up exceedingly faſt; each plant ſeems as it were in a ſtate of ſtrife with its neighbour, and in a ſtrict ſenſe they are ſo, and on no other terms than life for life; and he whoſe fate it is to be once overtopped, is ſoon after compelled to give up the conteſt for ever.

"After the Birches are cut down there is nothing more to be done but thinning the Oaks, from time to time, as may be required,

quired, and cutting off their dead branches as frequently as may be neceſſary. We are very cautious in doing the former, knowing well that if we can but once obtain length of timber, time will bring it into thickneſs; therefore we let them grow very cloſe together for the firſt fifty years.

"And here it may not be improper to obſerve the progreſs the Oak makes with us, by deſcribing them in two of our plantations, one of twenty-eight, the other of fifty years growth. In the former they are in general about twenty-five or twenty-ſix feet in height, and in girth about eighteen inches: the trees in the latter, planted in 1725, are ſomething more than ſixty feet in height, and in girth a little above three feet; and theſe trees are in general about fifty feet in the bole, from which you will eaſily conceive the ſmallneſs of their tops, even at this age.

"It would be a difficult matter to deſcribe their farther progreſs with any degree of certainty, therefore let it ſuffice to make this laſt obſervation on them in their mature ſtate."

Welbeck, 16 *June*, 1775.

We ſhall cloſe this ſection with the *Scotch Fir*.—It has already been obſerved, that the northern aſpect of bleak and barren hills is the only ſituation in which it can be propagated with any propriety in this country. The North of England abounds with ſituations bearing this deſcription; and ſo long as they remain in a ſtate of nakedneſs and waſte, whilſt there is *any* tree with which they may be profitably covered, they lie, a reproach to their owners, and as blots on the face of the country.

The late Sir CHARLES TURNER has made an attempt upon the heaths of Yorkſhire, but without any great ſhare of ſucceſs. His method was to *dibble* in ſeedling-trees, Larches, Oaks, and even Acorns, among the long heath, without any previous preparations. Some few of the Scotch Firs have got their heads above the Ling, and are now (1783) doing well; eſpecially under walls and in other ſheltered ſituations.

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The Larches and the Oaks have ſhared a worſe fate. The Spruce Fir has not been tried until within the laſt two years; the plants remain healthy, and promiſe ſucceſs.

Sir CHARLES's want of ſucceſs may not be owing to an improper method, more than to the want of a proper perſon to overlook his plantations: the perſon who has the care of plantations ſhould reſide upon the ſpot.

Scotland is the country to which we muſt apply for information reſpecting the propagation of the Fir. It is there where it is cultivated to advantage. In the notes to HUNTER's EVELYN's *Sylva* we find a letter, written by JAMES FARQUHARSON, Eſq. addreſſed to the Editor of that compilation, deſcribing the treatment of this tree in Scotland.

Marlee, June 22, 1775.

"——— In order to raiſe plantations of the Scotch Fir, let the cones be gathered in the month of February or March, from thriving young trees, as the old ones are not eaſily acceſſible, nor ſo productive of ſeed. Theſe are to be expoſed to the heat of the ſun, thinly ſpread on any kind of coarſe canvas, taking them under cover in the night-time, and only expoſing them when the ſun ſhines. This ſoon makes the cones expand with a crackling noiſe. When any quantity of the ſeed is ſhed, it muſt be ſeparated from the cones by a ſearch, otherwiſe the firſt-dropped ſeeds would become too dry before the cones yielded their whole quantity, which often takes up a conſiderable time; ſo that we are ſometimes obliged to dry the cones in kilns, to make them give their contents in time for ſowing, which ought to be done the end of April or beginning of May. The firſt method of procuring the ſeed is certainly the moſt eligible, tho' the other anſwers very well when attentively performed, ſo as not to damage the ſeed by too much heat. A light loamy ſoil, trenched a foot and a half deep, and laid out in beds five feet broad, anſwers the beſt for ſowing. Let the ſeeds be ſown very thick, and covered with a thick

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ſifting of mould from the alleys. Plants raiſed in this manner will riſe like a bruſh. No kind of manure ſhould be given to the beds, as productive of weeds; the drawing of which not only brings up many of the tender plants, but looſens the ground, and makes blanks that let in froſts in winter and drought in ſummer. To give an idea of the ſowing; I never conſider my crop of plants good, unleſs I have above a thouſand in each foot long of the beds, that is, in five ſquare feet. Upon their having two ſeaſons growth, I plant them out irregularly from the ſeed-bed, about three feet aſunder, upon the mountainous grounds where they are to riſe to perfection. I begin to plant the drieſt ground in autumn, eighteen months after ſowing, and perſiſt in this operation until the froſt prevents me. I begin again in February, or rather as the weather admits, and continue this work ſometimes to the end of April, ſo as to plant out the product of the two-year-old ſeed-beds. I put the plants into the ground with two cuts of a ſpade thus ⊳. I raiſe the point of the angle with what we call a Dibble, and laying the plant up to the neck, ſtamp down the raiſed ſod with the foot. In this method two men may plant a thouſand in a day. When the ground is rocky, or very ſtony, I uſe a Dibble ſhod with iron, having a cleft at the extremity to lead down the root, putting the plants into the ground in the manner that cabbages are planted. One man will plant as many in this way as two in the other; yet the firſt method is preferable where the ground admits of it, as I have always obſerved fewer plants to fail. My reaſon for planting from the ſeed-bed is, that it comes neareſt to the operation of Nature. Plants removed from the ſeed-bed into the nurſery, muſt have their roots pruned conſiderably before they can be planted into the pits where they are to continue, which adds greatly to the expence. Beſides, *nurſing* this hardy mountainous tree cauſes a luxuriant growth, which ſpoils its nature and robs it of longevity.

"It is generally believed that there are two kinds of Fir-trees, the produce of Scotland, viz. the red or reſinous large trees, of a fine grain, and hard ſolid wood; the other, a white-wooded Fir, with a much ſmaller proportion of reſin in it, of a coarſer grain, and a ſoft ſpongy nature, never comes to ſuch a ſize, and much more liable to decay. At firſt appearance this would readily denote two diſtinct ſpecies, but I am convinced that all the trees in Scotland under the denomination of Scotch Fir, are the ſame; and that the difference of the quality of the wood, and ſize of the trees, is entirely owing to circumſtances, ſuch as the climate, ſituation, and ſoil they grow in. The fineſt Fir-trees appear in the moſt mountainous parts of

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the Highlands of Scotland, in glens or on ſides of hills generally lying to a northerly aſpect, and the ſoil of a hard gravelly conſiſtence, being the natural produce of theſe places; the winged ſeeds are ſcattered in quantities by the wind, from the cones of the adjacent trees, which expand in April and May with the heat of the ſun. Theſe ſeedlings, when young, riſe extremely cloſe together, which makes them grow ſtraight, and free from ſide-branches of any ſize, to the height of fifty or ſixty feet before they acquire the diameter of a foot: even in this progreſs to height they are very ſlow, occaſioned by the poorneſs of the ſoil, and the numbers on a ſmall ſurface, which I may ſay makes them in a conſtant ſtate of war for their ſcanty nouriſhment, the ſtronger and talleſt by degrees over-topping the weaker, and when the winds blow they laſh againſt one another: this aſſiſts in beating off any horizontal branches that might damage the timber with knots, as well as by degrees cruſhes the over-topped trees. In ſuch ſtate of hoſtility they continue ſtruggling until the maſter-trees acquire ſome ſpace around them; then they begin to ſhoot out in a more buſhy manner at the top, gradually loſing their ſpiral form, increaſing afterwards more in ſize of body than height, ſome acquiring four feet diameter, and about ſixty feet of height to the branches, fit for the fineſt deal board. The growth is ſtill extremely ſlow, as is plainly proved by the ſmallneſs of the grain of the wood, which appears diſtinctly in circles from the center to the bark. Upon cutting a tree over cloſe at the root, I can venture to point out the exact age, which, in theſe old Firs, comes to an amazing number of years. I lately pitched upon a tree of two feet and a half diameter, which is near the ſize of a planted Fir of fifty years of age, and I counted exactly two hundred and fourteen circles or coats, which makes this natural Fir above four times the age of the planted one. Now, as to planted Firs, theſe are raiſed firſt in dreſſed ground from the ſeed, where they ſtand two ſeaſons or more, then are planted out in the ground they are to continue in at regular diſtances, have a clear circumference round them for extending both roots and branches; the one gives too quick nouriſhment to the tree, which ſhoots out in luxuriant growth, and the other allows many of the branches to ſpread horizontally, ſpoiling the timber with knots; beſides, this quick growth occaſions theſe quick yearly circular coats of wood, which form a coarſe grain of a ſpongy ſoft nature. The juices never after ripen into a proportional quantity their reſinous preſervative balm; ſo that the plantations decay before the wood acquires age, or a valuable ſize; and the timber, when uſed in work, has neither ſtrength, beauty, nor duration.

ration. I believe the climate has likewiſe a great ſhare in forming the nature of the beſt wood, which I account for in the following manner: The moſt mountainous parts of the Highlands, particularly the northerly hanging ſituations, where theſe fine Fir-trees are, have a much ſhorter time of vegetation than a more ſoutherly expoſure, or the lower open countries, being ſhaded by high hills from the rays of the ſun, even at mid-day, for months together; ſo that, with regard to other vegetables, nature viſibly continues longer in a torpid ſtate there than in any other places of the ſame latitude. This dead ſtate of nature for ſo long a time yearly, appears to me neceſſary to form the ſtrength and health of this particular ſpecies of timber. No doubt they may at firſt ſhew a gratefulneſs for better ſoil and more ſun, by ſhooting out ſpontaneouſly; but if the plant or tree is ſo altered by this luxury that it cannot attain any degree of perfection fit for the purpoſes intended, the attempt certainly proves in vain.

"From what is ſaid above, it is not at all my intention to diſſuade from *planting* Scotch Fir, but to encourage thoſe that have the proper ſoil and ſituation to do ſo; being of opinion that where theſe circumſtances agree, and there, planting not in lines, but irregularly and thicker than common, the trees will come to be of equal ſize and value with the *natural* ones. In confidence of this, I have planted ſeveral millions on the ſides of hills, out of the reach of ſeed from the natural Firs.

"As to the Larch, it grows in this country in great abundance, from the ſeed of our own plantations. I have found this beautiful and hardy tree to anſwer extremely well when planted out on barren grounds, from ſix inches to ſix feet high; and they are ſeldom known to fail, except where water has reached their roots. I have often remarked, with ſurprize, that when cattle or deer have broken off the main ſhoots with their horns, another branch has taken the lead, and ſtretched away at ſuch a rate as to heal up the wound ſo completely, that in a few years it was with difficulty I could diſcover the traces of the injury. The amazing growth of the Larix far exceeds with me all the native as well as foreign trees, bearing the expoſure and inclemency of the ſeaſon better than any of them; and of late I have the pleaſure to find that they naturalize themſelves by ſowing. I wiſh my experience could aſſiſt me in ſpeaking with as much certainty with regard to the value and uſefulneſs of the timber; but in that I can give but little ſatisfaction, as my oldeſt trees are not thirty years from the ſeed. At Dunkeld I have ſeen a ſmall ſummer-houſe finiſhed with Larix wood; the plants came from Loudon in earthen pots, about the year

1740,

1740, rather as a curioſity than from any expectation of their excellency. Though full of circular knots, the wood looked well, and did not ſeem to gall or warp ſo much as Fir of the ſame age and ſeaſoning would have done. It will be neceſſary to remark, that the heart or center of large trees is generally the knottieſt part of the trunk, occaſioned by the collateral branches, when young, ſupporting the ſtem to ſtature, which, as the tree advances, die and fall off; and this is particularly evident in trees that grow in thickets. The ſurface ſoon heals over, and the body of the tree is annually increaſed by circular rings of wood. I ſhall ſuppoſe a tree to be a foot in diameter when the lower branches die and drop off. In courſe of time it acquires four feet in diameter, which gives a ſurrounding coat, one foot and a half in thickneſs, of clean timber, the center remaining knotty. The growth of the Larix, and manner of dropping its branches when cloſe together, very much reſembles the Fir; ſo I am confident this fault of knottineſs, which ſeems to be the principal one, will amend by age. Yours, &c."

COPPICES.

AFTER what has been ſaid in the ſection WOODS, little remains to be added here concerning the method of raiſing COPPICES, excepting ſo far as relates to bogs, and other rotten, ſwampy ſituations.

The ſpecies of woods proper for this occaſion are,

The Aſh,	The Alder,
The Poplar,	The Ozier.

The *Aſh* will thrive to great advantage in moiſt ſituations, provided the roots have room enough to keep free from immediate contact with water.

The *Poplar* is ſeldom planted as a Coppice-wood; for

for what reaſon we know not: it will endure a great deal of moiſture.

The wood which we moſt commonly find propagated in ſituations ſimilar to thoſe deſcribed above, is the *Alder*; a tree which ſeems to ſet water at defiance, provided there be mould or mud enough to ſheath its roots in. Its poles, however, are not equal to thoſe of the Aſh, nor is its fuel to be compared with it, though preferable to that of the Poplar.

But of all the Aquatics, the *Ozier* ſtands firſt as a Coppice-wood, whether it be cut annually for the uſe of the baſket-makers, or be ſuffered to ſtand three, four, five, or a greater number of years, for the purpoſe of withs, hurdles, edders, ſtakes, rake-handles, other implements of huſbandry, or poles of almoſt any length or dimenſions.

The preparation of the ſoil conſiſts in digging trenches, at diſtances proportioned to the ſituation, ſo as to lay the ſurface dry; and the lower the water can be drawn beneath it, the fairer proſpect there will be of ſucceſs.

This work muſt be done in autumn, when the ſoil, having had all the ſummer to grow firm in, will ſtand to the ſpade; and the ſides of the trenches will be leſs liable to give way than they would in the ſpring, when the ſoil is filled like a ſponge with water; which ouzing out from beneath the beds into the new-made trenches, their ſides become undermined, and can never afterwards be made

made to ſtand properly; whereas, on the contrary, if the trenches be opened in autumn, and the mould which comes out of them be uſed in filling up the hollows, and laying the ſurface even and round, the winter's rains will not paſs through the ſoil, but will run off the ſurface, and will rather aſſiſt in eſtabliſhing the beds than in rendering them tender.

In March, the beds being firmly eſtabliſhed, and their ſurfaces in good working order, the ſoil ſhould be thoroughly trenched with the ſpade, and the ſetts inſerted.

The Aſh will require rooted plants, but the Aquatics will grow from cuttings or from layers.

The ſetts ſhould be put in about two feet from each other, and a potatoe-plant dibbled into the center of each interſpace. During ſummer the ſurface ſhould be kept clean hoed, and the potatoes earthed up from time to time.

In autumn, after the potatoes are taken up, the ſoil ought to be drawn towards the roots of the plants, leaving channels between them to carry off the winter's rains. The enſuing ſpring the plants muſt be looked over, and ſuch as have failed ſhould be replaced with freſh ſtrong ſetts.

After this, little more will be neceſſary than keeping under the taller weeds: if, however, in the courſe of three or four years the plants do not gain entire poſſeſſion of the ſoil, by overcoming the weeds and graſſineſs, they muſt be cut down to the ſtub, the interſpaces dug, the rubbiſh of the

ſurface turned in, and the roots of the plants freed from incumbrances with the hoe: A ſecond crop of potatoes may be taken, and the former treatment repeated.

Thus far as to the *Coppice*: we will conclude this ſection with ſome obſervations on the *Ozier-bed*.

Notwithſtanding the Ozier is uſually planted near water, we have good reaſon to believe it affects a dry ſituation: this we know, that it will not flouriſh in water; that is, when water has a *conſtant* communication with its roots. The places it moſt delights in are drained moors and the banks of large rivers, both of which are peculiarly dry ſituations: it has no diſlike, however, to being flooded occaſionally, but ſeems rather to be invigorated by ſuch irrigation: therefore, the ſand-banks which we frequently ſee thrown up by the ſides of rivers, and which ſometimes lie for half a century before they become profitable, are peculiarly eligible to be converted into Ozier-grounds.

The method of planting an Ozier-ground is this: The ſoil being laid perfectly dry, and its ſurface made thoroughly clean, cuttings, of the ſecond or third year's growth, and about twelve inches long, are planted in drills, about two feet and a half aſunder, in the month of March. The cuttings ought to be thruſt ſeven or eight inches deep, leaving four or five inches of head above ground.

The intervals muſt be kept ſtirred with a ſmall plow; or, the firſt year a crop of potatoes may be taken; the drills in either caſe muſt be kept perfectly clean with the hand-hoe; and at the approach

of

of winter the intervals muſt be ſplit, and the mould thrown to the roots of the young plants, in order to lay them dry and warm during winter.

In ſpring it will be well to trim off the firſt year's ſhoots (though not neceſſary), and replace the plants which have failed with freſh cuttings.

The ſecond ſummer the intervals muſt be kept ſtirred, the drills hoed, and the plants earthed up, as before, againſt winter.

The enſuing ſpring the ſtools muſt again be cleared; although the twigs as yet will be of little value. But the third cutting they will produce marketable ware, and will increaſe in quantity and value until the profits ariſing from them will be almoſt incredible. In ſituations which the Ozier affects, and in countries where the twigs are in demand, Ozier-grounds have been known to pay an annual rent of ten pounds an acre! Under ordinary circumſtances, they will, if properly managed, pay four or five.

In Yorkſhire the wands are ſold by the bundle; but in Glouceſterſhire, where Ozier-grounds abound upon the banks of the Severn, the grounds are lett under leaſe to the baſket-makers, who keep up the fences, and take upon themſelves the entire management, during the term of the leaſe.

WOODY WASTES.

NO inconſiderable part of the face of this country, taken collectively, is disfigured by lands bearing this deſcription *; the remedy, however, is eaſy, and the diſgrace might ſoon be removed.

If the ſoil and ſituation be favourable to graſs or arable produce, grub up the buſhes, and clear away the rubbiſh; but, on the contrary, if the land, either from its own nature or from the proportion of woodineſs which has already got poſſeſſion of its ſurface, can be more profitably converted into Woodland, fill up the vacant patches in the following manner.

The firſt buſineſs is to fence it round, and the next to cut down the underwood to the ſtub, and ſet up the timbers. If the vacancies be ſmall, they ought to be trenched with the ſpade; if large, they may be fallowed with the plow; or, in either caſe, the plants may be put in without any other preparation than digging holes to receive them: however, with *this* kind of management ſucceſs can only be *hoped for*, whilſt under *that* it may be *ſecured*.

The ſpecies of wood and the mode of propagation depend upon locality and the ſpecies of plantation required. If underwood be an object, the ſmaller chaſms may be filled up by layering;

* See the introductory part of this Chapter.

for

for which purpoſe young ſhoots ought to be left, when the bruſh-wood is felled, for layers: if timber alone be the deſired object, ſeedling plants may be put in, and acorns or other ſeeds dibbled in the interſpaces: Whether the Wood, the Grove, or the Coppice, be intended, the large ſpaces ought to be filled up in that way; or ſeeds only may be ſown in drills, and treated as before directed; or they may be ſcattered in the random manner, and the ſeedlings kept clean by weeding and hand-hoeing; or the foſtering care may be left to nature alone: indeed, in *this* kind of way Wood and Timber Groves may be propagated.

We do not, however, mean to recommend to our readers practices dependent upon *chance*, after having been ſolicitous to point out thoſe which may be purſued with *certainty*.

Gentlemen, when they ſet about forming plantations or raiſing Woodlands, ought to conſider, that the labour, the fencing, the ſeeds or plants, the rent, and other contingent charges of the land, their own preſent credit, and their future fame, are *ſtaked*. If after waiting eight or ten years a miſcarriage take place, the whole is *loſt*. On the contrary, if, by judicious methods and careful management, no material failure happen, the prize is *won*; not only the principal but intereſt is ſecured: and this by a ſmall additional expence; the trifling difference in labour beſtowed upon the after-management only: for the labour in the firſt

inſtance, rent, &c. &c. &c. are in both caſes ſimilar.

Much depends upon the perſon to whoſe care plantations are entruſted. If a Gentleman has not leiſure nor inclination to attend to them himſelf, he ought to appoint a man of experience; and, if poſſible, one who is *ſettled* near the ſeat of planting; and who is likely to enjoy his appointment for ſome length of time. For he who plants ought to expect to nurſe; and having planted he ought to nurſe, becauſe his own credit is at ſtake. On the contrary, a Gentleman who is continually changing his planter, muſt never expect to ſee his plantations ſucceed; for the credit of the preſent riſes upon the miſcarriage of his predeceſſor: he has even an intereſt in neglecting to nurſe; becauſe his own planting will be thereby ſet off to advantage. On the other hand, being without hopes of ſeeing his own labours ſucceed, he loſes a neceſſary ſtimulus: indeed, he is no way intereſted; for he is ſure of an *excuſe* in the neglect of his ſucceſſor. This is not a theoretical idea; but is drawn from actual obſervation.

CONCLUSION.

BEFORE we cloſe our diſcourſe upon WOODLANDS, it may be proper to ſay a few words reſpecting the *ſale* and *felling* of timber and underwood.

In

In the ſouthern counties timber is uſually ſold by the ton of 40 feet, either naked, that is already fallen and diveſted of its top, or ſtanding; the buyer taking it down, and having the advantage of the top-wood, bark, &c. the *timber* (namely, every part exceeding ſix inches *girt*, that is twenty-four inches in circumference) being meaſured after it is fallen.

In Yorkſhire the prevailing practice is to ſell the whole lot in the groſs, as it ſtands; the buyer agreeing to take it down and pay a ſum certain for timber, top-wood, and bark (we ſpeak more particularly of Oak-timber), without any retroſpect as to quantity. This mode of ſelling ſaves ſome trouble; and when timber ſtands at a diſtance from the reſidence of the ſeller, the buſineſs is agreeably ſhortened: beſides, he is not liable to be impoſed upon by falſe meaſurement or other fraudulent practices. However, in other points of view, it is unpleaſing and diſadvantageous to the ſeller. The buyer being generally a profeſſional man, and accuſtomed to the valuing of ſtanding-timber, can aſcertain its worth with a great degree of accuracy; whilſt the ſeller, unpractiſed in the art of valuation, is under the neceſſity of employing an agent in the buſineſs, at whoſe mercy he lies, not only as to his judgement, but his honeſty alſo.

In making a valuation of this kind, every tree is eſtimated ſeparately, not only as to the quantity of timber it contains, but likewiſe as to its quality, or the uſe to which it is peculiarly adapted.

The method of *felling* depends upon two things: If the ſtubs or ſtools be intended to be kept alive for the purpoſe of throwing out coppice-wood, as in Kent and Surrey, or for raiſing a ſecond crop of timber, as in Yorkſhire, the trees ought to be felled high with a ſaw, leaving the ſtools ſix or eight inches above ground;—having great care not to ſtrip off nor bruiſe their bark: but, if the ground be intended to be cleared, the trees ought either to be grubbed up entirely by the roots, or *grub-felled*, in the Norfolk manner; which is to cut off the roots cloſe to the bottom of the ſtem, leaving this entire, with a conical piece of root annexed to it; ſo that this method gives more timber even than that of grubbing and afterwards cutting off the butts with a ſaw.

If the wood be intended to be *ſprung* again, the ſtools ought to be freed from the timber and top-wood before the young ſhoots make their appearance, or great miſchiefs muſt neceſſarily enſue.

Under the article FENCES we have declared againſt a *general fall* of Hedge-timber. But in a Wood, where the trees ſtand in contact with each other, a different conduct ought to be obſerved; more eſpecially if it be deſigned to be re-ſprung: for, in taking down the full-grown trees, the younger ſtands will, in all probability, be cruſhed, or at leaſt maimed; and if they eſcape, they become injurious to the riſing ſaplings.

Beſides, it is obſervable, that ſingle trees, left in this manner, (diſtinguiſhed in Yorkſhire by the name of *Wavers*) always receive a check, and generally become

become *ſtag-headed*; either from a change of atmoſphere, which takes place upon the removal of their wonted ſhelter, or from a profuſion of ſide-ſhoots, which, under theſe circumſtances, are uſually put forth, and which conſequently draw off a part of the ſap from the top;—or, perhaps, from the joint operation of theſe two cauſes.

Be this as it may, it is generally good management to clear away the whole to the ſtub: the coppice-wood, or ſecond crop of ſaplings, will generally riſe to more advantage than the *Waver*, beſides an incumbrance being removed.

The beſt *time for taking down* timbers in general is winter, when the ſap is at reſt: in this country, however, the Oak may be conſidered as an exception to this general rule; for, notwithſtanding the acknowledged ſuperiority of the *timber* when taken down at that time, the value of the bark, which can only be ſtripped during the riſe of the ſap, in the Spring, or about Midſummer, is perhaps more than a compenſation for the injury ſuſtained in the quality of the timber.

The practice of barking trees, ſtanding, and letting them remain upon their roots until the enſuing winter, has been ſtrongly recommended; and has been tried in different parts of the kingdom, eſpecially in Yorkſhire. There is, we believe, no doubt as to the excellency of this method; but we are much afraid it will not readily be brought into general practice. The barking ſeaſon is of ſhort duration, and is generally a time of hurry and buſtling;

buſtling: indeed, if the undertaking be large, diſpatch is neceſſary. The method of barking trees as they ſtand, is tedious in the firſt inſtance, beſides incurring what, we fear, will always be conſidered as *two troubles*; namely, the barking and the felling. Nevertheleſs, the practice is highly recommendable to gentlemen who want to take down a few trees only for their own uſe; for although they are not, *in this caſe*, reſtricted by the general law relating to the bark, yet the value of the bark is too conſiderable to be thrown away.

In Norfolk it is ſold upon the tree at ſo much per load of timber, the tanners employing their own peelers, and taking all the trouble upon themſelves. The price of the bark generally runs from one-fifth to one-eighth part of the value of the timber; depending upon how the trees are *hung*, or furniſhed with branches.

In the ſouthern counties, bark is uſually ſold ready peeled, but in the rough; whilſt, in Yorkſhire, it is generally *chopt* by the ſeller, and ſold to the tanner by the quarter.

With reſpect to Coppice and Underwood, the time of ſelling depends, in ſome meaſure, upon the ſpecies, and if that be Oak, upon the age at which it is felled. On the hills of Surrey, where it is uſually cut at ſeven or eight years old, for ſtakes and other purpoſes, it is generally felled in winter; but in places where it is ſuffered to ſtand fifteen or twenty years, for hop-poles, rails, &c. the Oak ſhould be taken down in the barking ſeaſon, not only

only for the ſake of the bark, but to guard againſt the worm.

Finally: with regard to the training of ſapling timbers, the care and management principally requiſite lie in keeping up the fences, and *weeding*—that is thinning—the young plants from time to time. The oftener this is repeated the more profit will generally ariſe. It is well to endeavour to train thoſe ſhoots which ſpring from the lower parts of the ſtools; theſe being leſs liable to be ſplit off by the wind than thoſe which grow higher: in other reſpects, the conduct is much the ſame as that recommended in the ſection GROVES. The progreſs which thoſe ſaplings will make depends upon the ſoil they ſtand upon: in ordinary ſituations they will riſe to about forty feet high, and ſwell to *timber girt* (ſay from twenty to thirty inches in circumference) in forty years.

GROUNDS:

OR,

ORNAMENTAL PLANTATIONS.

MANKIND no ſooner find themſelves in faſt poſſeſſion of the *neceſſaries* of life, than they begin to feel a want of its *conveniencies*; and theſe obtained, ſeldom fail of indulging in one or more of its various *refinements*. Some men delight in the luxuries of the imagination; others in thoſe of the ſenſes. One man finds his wants ſupplied in the delicacies of the table, whilſt another flies to perfumes and eſſences for relief: few men are inſenſible to the gratifications of the ear; and men in general are ſuſceptible of thoſe of the eye. The imitative arts of painting and ſculpture have been the ſtudy and delight of civilized nations in all ages; but the art of embelliſhing Nature herſelf has been reſerved for this age, and for this nation!

A fact the more aſtoniſhing, as ornamented Nature is as much ſuperior to a Painting or a Statue, as a "Reality is to a Repreſentation;"—as the Man himſelf is to his Portrait. That the ſtriking features—the beauties—of Nature, whenever

ever they have been *ſeen*, have always been *admired* by men of ſenſe and refinement, is undoubtedly true; but why the good offices of art, in diſcloſing theſe beauties, and ſetting off thoſe features to advantage, ſhould have been ſo long confined to the human perſon alone, is, of all other facts in the Hiſtory of Arts and Sciences, the moſt extraordinary.

The Tranſlator of D'Ermenonville's Eſſay on Landſcape has attempted to prove, in an introductory diſcourſe, that the art is nothing *new*, for that it was *known* to the Antients, though not *practiſed*. But the evidences he produces go no farther than to ſhew, that the Antients were *admirers of Nature in a ſtate of wildneſs*; for, whenever they attempted to *embelliſh* Nature, they appear to have been guided by a kind of Otaheitean taſte; as the gardens of the Greeks and Romans, like thoſe of the modern nations (until of late years in this country), convey to us no other idea than that of *Nature tatoo'd* *.

Mr. Burgh, in a Note to his ingenious Commentary upon Mr. Maſon's beautiful poem *The Engliſh Garden*, confirms us in theſe ideas; and, by a quotation from the Younger Pliny, ſhews the juſt notions the Antients entertained of the powers of

* The inhabitants of Otaheitee, an iſland in the Southern hemiſphere, ornament their bodies by making punctures in the ſkin with a ſharp-pointed inſtrument, and call it *tatowing*. The African Negroes are ſtill groſſer in their ideas of ornament, gaſhing their cheeks and temples in a manner ſimilar to that practiſed by the Engliſh Butcher in ornamenting a ſhoulder of mutton, or a Dutch gardener in embelliſhing the environs of a manſion.

human

human invention, in aſſociating and poliſhing the rougher ſcenes of Nature: for, after giving us a beautiful deſcription of the natural ſcenery round his Tuſcan villa, upon the banks of the Tiber, he acknowledges "the view before him to reſemble a "picture beautifully compoſed, rather than a work "of Nature accidentally delivered."

We have been told that the Engliſh Garden is but a copy of the Gardens of the Chineſe: this, however, is founded in Gallic envy rather than in truth; for though their ſtyle of Gardening may not admit of *tatooings* and *topiary works* *, it has as little to do with natural ſcenery as the garden of an antient Roman, or a modern Frenchman:——THE ART OF *aſſiſting* NATURE is, undoubtedly, all our own.

It cannot fail of proving highly intereſting to our Readers, to trace the riſe of this delightful Art.

Mr. Walpole, in his *Anecdotes of Painting in England*, has favoured the Public with *The Hiſtory of modern Taſte in Gardening*. A pen guided by ſo maſterly a hand muſt ever be productive of information and entertainment when employed upon a ſubject ſo truly intereſting as that which is now before us. Deſirous of conveying to our Readers all the information which we can compreſs with propriety within the limits of our plan, we wiſhed to have given the *ſubſtance* of this valuable paper;

* Trees carved by a *Topiarius*, into the form of beaſts, birds, &c.

but

but finding it already in the language of ſimplicity, and being aware of the miſchiefs which generally enſue in *meddling* with the productions of genius, we had only one alternative; either wholly to tranſcribe, or wholly to reject. *This* we could not do, in ſtrict juſtice to our Readers; for, beſides giving us, in detail, the advancement of the art, it throws conſiderable light upon the art itſelf; and being only a ſmall part of a work upon a different ſubject, it is the leſs likely to fall into the hands of thoſe to whom it cannot fail of proving highly intereſting. We are, therefore, induced to exceed our intended limits in this reſpect, by making a literal tranſcript; and hope, in the liberality of the Author, to be pardoned for ſo doing.

GARDENING was probably one of the firſt arts that ſucceeded to that of building houſes, and naturally attended property and individual poſſeſſion. Culinary, and afterwards medicinal herbs were the objects of every head of a family: it became convenient to have them within reach, without ſeeking them at random in woods, in meadows, and on mountains, as often as they were wanted. When the earth ceaſed to furniſh ſpontaneouſly all theſe primitive luxuries, and culture became requiſite, ſeparate incloſures for rearing herbs grew expedient. Fruits were in the ſame predicament, and thoſe moſt in uſe or that demand attention, muſt have entered into and extended the domeſtic incloſure. The good man Noah, we are told, planted a vineyard, drank of the wine, and was drunken, and every body knows the conſequences. Thus we acquired kitchen-gardens, orchards, and vineyards. I am apprized that the prototype of all theſe ſorts was the garden of Eden; but as that Paradiſe was a good deal larger than any we read of afterwards, being incloſed by the rivers Piſon, Gihon, Hiddekel, and Euphrates, as every tree that was pleaſant to the ſight and good for food grew in it, and as two other trees were likewiſe found there, of which not a ſlip or ſucker remains, it does not belong to the preſent diſcuſſion. After the Fall, no man living

was

was ſuffered to enter into the garden; and the poverty and neceſſities of our firſt anceſtors hardly allowed them time to make improvements in their eſtates in imitation of it, ſuppoſing any plan had been preſerved. A cottage and a ſlip of ground for a cabbage and a gooſeberry-buſh, ſuch as we ſee by the ſide of a common, were in all probability the earlieſt ſeats and gardens: a well and bucket ſucceeded to the Piſon and Euphrates. As ſettlements increaſed, the orchard and the vineyard followed; and the earlieſt princes of tribes poſſeſſed juſt the neceſſaries of a modern farmer.

Matters, we may well believe, remained long in this ſituation; and though the generality of mankind form their ideas from the import of words in their own age, we have no reaſon to think that for many centuries the term Garden implied more than a kitchen-garden or orchard. When a Frenchman reads of the garden of Eden, I do not doubt but he concludes it was ſomething approaching to that of Verſailles, with clipt hedges, berceaus, and trellis-work. If his devotion humbles him ſo far as to allow that, conſidering who deſigned it, there might be a labyrinth full of Æſop's Fables, yet he does not conceive that four of the largeſt rivers in the world were half ſo magnificent as an hundred fountains full of ſtatues by Girardon. It is thus that the word Garden has at all times paſſed for whatever was underſtood by that term in different countries. But that it meant no more than a kitchen-garden or orchard for ſeveral centuries, is evident from thoſe few deſcriptions that are preſerved of the moſt famous gardens of antiquity.

That of Alcinous, in the Odyſſey, is the moſt renowned in the heroic times. Is there an admirer of Homer who can read his deſcription without rapture; or who does not form to his imagination a ſcene of delights more pictureſque than the landſcapes of Tinian or Juan Fernandez? Yet what was that boaſted Paradiſe with which

> the gods ordain'd
> To grace Alcinous and his happy land? POPE.

Why, diveſted of harmonious Greek and bewitching poetry, it was a ſmall orchard and vineyard, with ſome beds of herbs and two fountains that watered them, incloſed within a quickſet hedge. The whole compaſs of this pompous garden incloſed—four acres.

> Four acres was th' allotted ſpace of ground,
> Fenc'd with a green incloſure all around.

The trees were apples, figs, pomegranates, pears, olives, and vines.

Tall thriving trees confeſs'd the fruitful mold;
The redning apple ripens into gold.
Here the blue fig with luſcious juice o'erflows,
With deeper red the full pomegranate glows.
The branch here bends beneath the weighty pear,
And verdant olives flouriſh round the year.
* * * * * *
Beds of all various herbs, for ever green,
In beauteous order terminate the ſcene.

Alcinous's garden was planted by the poet, enriched by him with the fairy gift of eternal ſummer, and no doubt an effort of imagination ſurpaſſing any thing he had ever ſeen. As he has beſtowed on the ſame happy prince a palace with brazen walls and columns of ſilver, he certainly intended that the garden ſhould be proportionably magnificent. We are ſure therefore that as late as Homer's age, an incloſure of four acres, comprehending orchard, vineyard and kitchen-garden, was a ſtretch of luxury the world at that time had never beheld.

The hanging gardens of Babylon were a ſtill greater prodigy. We are not acquainted with their diſpoſition or contents, but as they are ſuppoſed to have been formed on terraſſes and the walls of the palace, whither ſoil was conveyed on purpoſe, we are very certain of what they were not; I mean they muſt have been trifling, of no extent, and a wanton inſtance of expence and labour. In other words, they were what ſumptuous gardens have been in all ages till the preſent, unnatural, enriched by art, poſſibly with fountains, ſtatues, baluſtrades, and ſummer-houſes, and were any thing but verdant and rural.

From the days of Homer to thoſe of Pliny, we have no traces to lead our gueſs to what were the gardens of the intervening ages. When Roman authors, whoſe climate inſtilled a wiſh for cool retreats, ſpeak of their enjoyments in that kind, they ſigh for grottos, caves, and the refreſhing hollows of mountains, near irriguous and ſhady founts; or boaſt of their porticos, walks of planes, canals, baths and breezes from the ſea. Their gardens are never mentioned as affording ſhade and ſhelter from the rage of the dog-ſtar. Pliny has left us deſcriptions of two of his villas. As he uſed his Laurentine villa for his winter retreat, it is not ſurpriſing that the garden makes no conſiderable part of the account. All he ſays of it is, that the geſtatio or place of exerciſe, which ſurrounded the garden (the latter conſequently not being very large) was bounded by a hedge of box, and where that was periſhed, with roſemary; that there was a walk of vines, and that moſt of the trees were fig and mulberry, the ſoil not being proper for any other ſorts.

On his Tuſcan villa he is more diffuſe; the garden makes a conſiderable part of the deſcription:—andwhat was the princi-

pal

pal beauty of that pleaſure-ground? Exactly what was the admiration of this country about threeſcore years ago; box-trees cut into monſters, animals, letters, and the names of the maſter and the artificer. In an age when architecture diſplayed all its grandeur, all its purity, and all its taſte; when aroſe Veſpaſian's amphitheatre, the temple of Peace, Trajan's forum, Domitian's baths, and Adrian's villa, the ruins and veſtiges of which ſtill excite our aſtoniſhment and curioſity; a Roman conſul, a poliſhed emperor's friend, and a man of elegant literature and taſte, delighted in what the mob now ſcarce admire in a college-garden. All the ingredients of Pliny's correſponded exactly with thoſe laid out by London and Wiſe on Dutch principles. He talks of ſlopes, terraſſes, a wilderneſs, ſhrubs methodically trimmed, a marble baſon, * pipes ſpouting water, a caſcade falling into the baſon, bay-trees, alternately planted with planes, and a ſtrait walk, from whence iſſued others parted off by hedges of box, and apple-trees, with obeliſks placed between every two. There wants nothing but the embroidery of a parterre, to make a garden in the reign of Trajan ſerve for a deſcription of one in that of king William†. In one paſſage above Pliny ſeems to have conceived that natural irregularity might be a beauty; *in opere urbaniſſimo*, ſays he, *ſubita velut illati ruris imitatio*. Something like a rural view was contrived amidſt ſo much poliſhed compoſition. But the idea ſoon vaniſhed, lineal walks immediately enveloped the ſlight ſcene, and names and inſcriptions in box again ſucceeded to compenſate for the daring introduction of nature.

In the paintings found at Herculaneum are a few traces of gardens, as may be ſeen in the ſecond volume of the prints. They are ſmall ſquare incloſures, formed by trellis-work, and eſpaliers‡,

* The Engliſh gardens deſcribed by Hentzner in the reign of Elizabeth, are exact copies of thoſe of Pliny. In that at Whitehall was a ſun-dial and jet-d'eau, which on turning a cock ſpurted out water and ſprinkled the ſpectators. In lord Burleigh's at Theobald's were obeliſks, pyramids, and circular porticos, with ciſterns of lead for bathing. At Hampton-court the garden walls were covered with roſemary, a cuſtom, he ſays, very common in England. At Theobald's was a labyrinth alſo, an ingenuity I ſhall mention preſently to have been frequent in that age.

† Dr. Plot, in his Natural Hiſtory of Oxfordſhire, p. 380, ſeems to have been a great admirer of trees carved into the moſt heterogeneous forms, which he calls *topiary works*, and quotes one Laurembergius for ſaying that the Engliſh are as expert as moſt nations in that kind of ſculpture, for which Hampton-court was particularly remarkable. The Doctor then names other gardens that flouriſhed with animals and caſtles, formed *arte topiaria*, and above all a wren's-neſt that was capacious enough to receive a man to ſit on a ſeat made within it for that purpoſe.

‡ At Warwick-caſtle is an ancient ſuit of arras, in which there is a garden exactly reſembling theſe pictures of Herculaneum.

and regularly ornamented with vaſes, fountains and careatides, elegantly ſymmetrical, and proper for the narrow ſpaces allotted to the garden of a houſe in a capital city. From ſuch I would not baniſh thoſe playful waters that refreſh a ſultry manſion in town, nor the neat trellis, which preſerves its wooden verdure better than natural greens expoſed to duſt. Thoſe treillages in the gardens at Paris, particularly on the Boulevard, have a gay and delightful effect.—They form light corridores, and tranſpicuous arbours through which the ſun-beams play and chequer the ſhade, ſet off the ſtatues, vaſes, and flowers, that marry with their gaudy hotels, and ſuit the gallant and idle ſociety who paint the walks between their parterres, and realize the fantaſtic ſcenes of Watteau and Durfe.

From what I have ſaid, it appears how naturally and inſenſibly the idea of a kitchen-garden ſlid into that which has for ſo many ages been peculiarly termed a Garden, and by our anceſtors in this country, diſtinguiſhed by the name of a Pleaſure-garden. A ſquare piece of ground was originally parted off in early ages for the uſe of the family:—to exclude cattle and aſcertain the property it was ſeparated from the fields by a hedge. As pride and deſire of privacy encreaſed, the incloſure was dignified by walls; and in climes where fruits were not laviſhed by the ripening glow of nature and ſoil, fruit-trees were aſſiſted and ſheltered from ſurrounding winds by the like expedient; for the inundation of luxuries which have ſwelled into general neceſſities, have almoſt all taken their ſource from the ſimple fountain of reaſon.

When the cuſtom of making ſquare gardens incloſed with walls was thus eſtabliſhed, to the excluſion of nature and proſpect *, pomp and ſolitude combined to call for ſomething that might enrich and enliven the inſipid and unanimated partition. Fountains, firſt invented for uſe, which grandeur loves to diſguiſe and throw out of the queſtion, received embelliſhments from coſtly marbles, and at laſt, to contradict utility, toſſed their waſte of waters into air in ſpouting columns. Art, in the hands of rude man, had at firſt been made a ſuccedaneum to nature; in the hands of oſtentatious wealth, it became the means of oppoſing nature; and the more it traverſed the march of the latter, the more nobility thought its power was demonſtrated. Canals meaſured by the line were introduced in lieu of meandering ſtreams, and terraſſes were hoiſted aloft in oppo-

* It was not uncommon, after the circumadjacent country had been ſhutout, to endeavour to recover it by raiſing large mounts of earth to peep over the walls of the garden.

ſition

ſition to the facile ſlopes that imperceptibly unite the valley to the hill. Baluſtrades defended theſe precipitate and dangerous elevations, and flights of ſteps rejoined them to the ſubjacent flat from which the terraſs had been dug. Vaſes and ſculpture were added to theſe unneceſſary balconies, and ſtatues furniſhed the lifeleſs ſpot with mimic repreſentations of the excluded ſons of men. Thus difficulty and expence were the conſtituent parts of thoſe ſumptuous and ſelfiſh ſolitudes; and every improvement that was made, was but a ſtep farther from nature. The tricks of water-works to wet the unwary, not to refreſh the panting ſpectator, and parterres embroidered in patterns like a petticoat, were but the childiſh endeavours of faſhion and novelty to reconcile greatneſs to what it had ſurfeited on. To crown theſe impotent diſplays of falſe taſte, the ſheers were applied to the lovely wildneſs of form with which nature has diſtinguiſhed each various ſpecies of tree and ſhrub. The venerable Oak, the romantic Beech, the uſeful Elm, even the aſpiring circuit of the Lime, the regular round of the Cheſnut, and the almoſt moulded Orange-tree, were corrected by ſuch fantaſtic admirers of ſymmetry. The compaſs and ſquare were of more uſe in plantations than the nurſery-man. The meaſured walk, the quincunx, and the etoile, impoſed their unſatisfying ſameneſs on every royal and noble garden. Trees were headed, and their ſides pared away; many French groves ſeem green cheſts ſet upon poles. Seats of marble, arbours, and ſummer-houſes, terminated every viſto; and ſymmetry, even where the ſpace was too large to permit its being remarked at one view, was ſo eſſential, that, as Pope obſerved,

> ————each alley has a brother,
> And half the garden juſt reflects the other.

Knots of flowers were more defenſibly ſubjected to the ſame regularity. Leiſure, as Milton expreſſed it,

> in trim gardens took his pleaſure.

In the garden of Marſhal de Biron at Paris, conſiſting of fourteen acres, every walk is buttoned on each ſide by lines of flower-pots, which ſucceed in their ſeaſons. When I ſaw it, there were nine thouſand pots of Aſters, or la Reine Marguerite.

We do not preciſely know what our anceſtors meant by a bower, it was probably an arbour; ſometimes it meant the whole frittered incloſure, and in one inſtance it certainly included a labyrinth. Roſamond's bower was indiſputably of that kind, though whether compoſed of walls or hedges we

cannot determine *. A ſquare and a round labyrinth were ſo capital ingredients of a garden formerly, that in Du Cerceau's architecture, who lived in the time of Charles IX. and Henry III. there is ſcarce a ground-plot without one of each. The enchantment of antique appellations has conſecrated a pleaſing idea of a royal reſidence, of which we now regret the extinction. Havering in the Bower, the jointure of many dowager queens, conveys to us the notion of a romantic ſcene.

In Kip's Views of the Seats of our Nobility and Gentry, we ſee the ſame tireſome and returning uniformity. Every houſe is approached by two or three gardens, conſiſting perhaps of a gravel-walk and two graſs-plats, or borders of flowers. Each riſes above the other by two or three ſteps, and as many walls and terraſſes, and ſo many iron gates, that we recollect thoſe ancient romances, in which every entrance was guarded by nymphs or dragons. At Lady Orford's, at Piddletown, in Dorſetſhire, there was, when my brother married, a double incloſure of thirteen gardens, each I ſuppoſe not much above an hundred yards ſquare, with an enfilade of correſpondent gates; and before you arrived at theſe, you paſſed a narrow gut between two ſtone terraſſes, that roſe above your head, and which were crowned by a line of pyramidal yews. A bowling-green was all the lawn admitted in thoſe times, a circular lake the extent of magnificence.

Yet though theſe and ſuch prepoſterous inconveniencies prevailed from age to age, good ſenſe in this country had perceived the want of ſomething at once more grand and more natural. Theſe reflections, and the bounds ſet to the waſte made by royal ſpoilers, gave origin to Parks. They were contracted foreſts, and extended gardens. Hentzner ſays, that, according to Rous of Warwick, the firſt park was that at Woodſtock. If ſo, it might be the foundation of a legend that Henry II. ſecured his miſtreſs in a labyrinth: it was no doubt more difficult to find her in a park than in a palace, where the intricacy of the woods and various lodges buried in covert might conceal her actual habitation.

It is more extraordinary that having ſo long ago ſtumbled on the principle of modern gardening, we ſhould have perſiſted in retaining its reverſe, ſymmetrical and unnatural gardens. That parks were rare in other countries, Hentzner, who travel-

*. Drayton, in a note to his Epiſtle of Roſamond, ſays, her labyrinth was built of vaults under ground, arched and walled with brick and ſtone; but, as Mr. Gough obſerves, he gives no authority for that aſſertion. V. pref. to 2d edit. of Britiſh Topography, p. xxx. Such vaults might remain to Drayton's time, but did not prove that there had been no ſuperſtructure.

led

led over great part of Europe, leads us to ſuppoſe, by obſerving that they were common in England. In France they retain the name, but nothing is more different both in compaſs and diſpoſition. Their parks are uſually ſquare or oblong incloſures, regularly planted with walks of cheſnuts or limes, and generally every large town has one for its public recreation. They are exactly like Burton's-court, at Chelſea-college, and rarely larger.

One man, one great man we had, on whom nor education nor cuſtom could impoſe their prejudices; who, "on evil days "though fallen, and with darkneſs and ſolitude compaſſed "round," judged that the miſtaken and fantaſtic ornaments he had ſeen in gardens, were unworthy of the Almighty Hand that planted the delights of Paradiſe. He ſeems, with the prophetic eye of taſte [as I have heard taſte well* defined], to have conceived, to have foreſeen modern gardening; as Lord Bacon announced the diſcoveries ſince made by experimental philoſophy. The deſcription of Eden is a warmer and more juſt picture of the preſent ſtyle than Claud Lorrain could have painted from Hagley or Stourhead. The firſt lines I ſhall quote exhibit Stourhead on a more magnificent ſcale.

Thro' Eden went a river large,
Nor chang'd his courſe, but thro' the ſhaggy hil
Paſs'd underneath ingulph'd, for God had thrown
That mountain as his garden-mound, high rais'd
Upon the rapid current——

Hagley ſeems pictured in what follows:

which thro' veins
Of porous earth with kindly thirſt updrawn,
Roſe a freſh fountain, and with many a rill
Water'd the garden——

What colouring, what freedom of pencil, what landſcape in theſe lines!

——from that ſaphire fount the criſped brooks,
Rolling on orient pearl and ſands of gold,
With mazy error under pendent ſhades
Ran nectar, viſiting each plant, and fed
Flow'rs worthy of Paradiſe, which not *nice art*
In beds and curious knots, but *nature* boon
Pour'd forth profuſe on hill and dale and plain,

* By the great Lord Chatham, who had a good taſte himſelf in modern gardening, as he ſhewed by his own villas in Enfield Chace and at Hayes.

Both where the morning ſun firſt warmly ſmote
The *open field*, and where the unpierc'd ſhade
Imbrown'd the noon-tide bow'rs.—*Thus was this place*
A happy rural ſeat of various view.

Read this tranſporting deſcription, paint to your mind the ſcenes that follow, contraſt them with the ſavage but reſpectable terror with which the poet guards the bounds of his Paradiſe, fenced

——with the champaign head
Of a ſteep wilderneſs, whoſe hairy ſides
With thicket overgrown, groteſque and wild,
Acceſs denied; and over head upgrew
Inſuperable height of loftieſt ſhade,
Cedar and pine, and fir, and branching palm,
A ſylvan ſcene, and, as the ranks aſcend,
Shade above ſhade, a woody theatre
Of ſtatelieſt view——

and then recollect that the author of this ſublime viſion had never ſeen a glimpſe of any thing like what he has imagined, that his favourite ancients had dropped not a hint of ſuch divine ſcenery, and that the conceits in Italian gardens, and Theobalds and Nonſuch, were the brighteſt originals that his memory could furniſh. His intellectual eye ſaw a nobler plan, ſo little did he ſuffer by the loſs of ſight. It ſufficed him to have ſeen the materials with which he could work. The vigour of a boundleſs imagination told him how a plan might be diſpoſed, that would embelliſh nature, and reſtore art to its proper office, the juſt improvement or imitation of it *.

It is neceſſary that the concurrent teſtimony of the age ſhould ſwear to poſterity that the deſcription above quoted was written above half a century before the introduction of modern gardening, or our incredulous deſcendents will defraud the poet of half his glory, by being perſuaded that he copied ſome garden or gardens he had ſeen—ſo minutely do his ideas correſpond with the preſent ſtandard. But what ſhall we ſay for that intervening half century who could read that plan and never attempt to put it in execution?

Now let us turn to an admired writer, poſterior to Milton, and ſee how cold, how inſipid, how taſteleſs is his account of what he pronounced a perfect garden. I ſpeak not of his ſtyle, which it was not neceſſary for him to animate with the colouring and glow of poetry. It is his want of ideas, of imagination, of taſte,

* Since the above was written, I have found Milton praiſed and Sir William Temple cenſured, on the ſame foundations, in a poem called The Riſe and Progreſs of the preſent Taſte in Planting, printed in 1767.

that

that I cenſure, when he dictated on a ſubject that is capable of all the graces that a knowledge of beautiful nature can beſtow. Sir William Temple was an excellent man; Milton, a genius of the firſt order.

We cannot wonder that Sir William declares in favour of parterres, fountains, and ſtatues, as neceſſary to break the ſameneſs of large graſs-plats, which he thinks have an ill effect upon the eye, when he acknowledges that he diſcovers fancy in the gardens of Alcinous. Milton ſtudied the Antients with equal enthuſiaſm, but no bigotry, and had judgment to diſtinguiſh between the want of invention and the beauties of poetry. Compare his Paradiſe with Homer's Garden, both aſcribed to a celeſtial deſign. For Sir William, it is juſt to obſerve, that his ideas centered in a fruit-garden. He had the honour of giving to his country many delicate fruits, and he thought of little elſe than diſpoſing them to the beſt advantage. Here is the paſſage I propoſed to quote; it is long, but I need not make an apology to the reader for entertaining him with any other words inſtead of my own.

"The beſt figure of a garden is either a ſquare or an oblong, and either upon a flat or a deſcent: they have all their beauties, but the beſt I eſteem an oblong upon a deſcent. The beauty, the air, the view, makes amends for the expence, which is very great in finiſhing and ſupporting the terras-walks, in levelling the parterres, and in the ſtone-ſtairs that are neceſſary from one to the other.

"The perfecteſt figure of a garden I ever ſaw, either at home or abroad, was that of Moor-park in Hertfordſhire, when I knew it about thirty years ago. It was made by the Counteſs of Bedford, eſteemed among the greateſt wits of her time, and celebrated by Doctor Donne; and with very great care, excellent contrivance, and much coſt; but greater ſums may be thrown away without effect or honour, if there want ſenſe in proportion to money, or *if nature be not followed*, which I take to be the great rule in this, and perhaps in every thing elſe, as far as the conduct not only of our lives but our governments." [We ſhall ſee how *natural* that admired garden was.]

"Becauſe I take * the garden I have named to have been in all kinds the moſt beautiful and perfect, at leaſt in the figure and diſpoſition, that I have ever ſeen, I will deſcribe it for a model to thoſe that meet with ſuch a ſituation, and are above the regards of common expence. It lies on the ſide of a hill,

* This garden ſeems to have been made after the plan laid down by Lord Bacon in his 46th Eſſay, to which, that I may not multiply quotations, I will refer the reader.

upon

upon which the houſe ſtands, but not very ſteep. The length of the houſe, where the beſt rooms and of moſt uſe or pleaſure are, lies upon the breadth of the garden; the great parlour opens into the middle of a terras gravel-walk that lies even with it, and which may lie, as I remember, about three hundred paces long, and broad in proportion; the border ſet with ſtandard laurels and at large diſtances, which have the beauty of orange-trees out of flower and fruit. From this walk are three deſcents by many ſtone ſteps, in the middle and at each end, into a very large parterre. This is divided into quarters by gravel-walks, and adorned with two fountains and eight ſtatues in the ſeveral quarters. At the end of the terras-walk are two ſummer-houſes, and the ſides of the parterre are ranged with two large cloiſters open to the garden, upon arches of ſtone, and ending with two other ſummer-houſes even with the cloiſters, which are paved with ſtone, and deſigned for walks of ſhade, there being none other in the whole parterre. Over theſe two cloiſters are two terraſſes covered with lead and fenced with baluſters; and the paſſage into theſe airy walks is out of the two ſummer-houſes at the end of the firſt terras-walk. The cloiſter facing the ſouth is covered with vines, and would have been proper for an orange-houſe, and the other for myrtles or other more common greens, and had, I doubt not, been caſt for that purpoſe, if this piece of gardening had been then in as much vogue as it is now.

"From the middle of this parterre is a deſcent by many ſteps flying on each ſide of a grotto that lies between them, covered with lead and flat, into the lower garden, which is all fruit-trees ranged about the ſeveral quarters of a wilderneſs which is very ſhady; the walks here are all green, the grotto embelliſhed with figures of ſhell rock-work, fountains, and water-works. If the hill had not ended with the lower garden, and the wall were not bounded by a common way that goes through the park, they might have added a third quarter of all greens; but this want is ſupplied by a garden on the other ſide the houſe, which is all of that ſort, very wild, ſhady, and adorned with rough rock-work and fountains.

"This was Moor-park when I was acquainted with it, and the ſweeteſt place, I think, that I have ſeen in my life, either before or ſince, at home or abroad."—

I will make no farther remarks on this deſcription. Any man might deſign and *build* as ſweet a garden, who had been born in and never ſtirred out of Holborn. It was not peculiar to Sir William Temple to think in that manner. How many Frenchmen are there who have ſeen *our* gardens, and ſtill prefer *natural* flights of ſteps and ſhady cloiſters covered with lead!

Le

Le Nautre, the architect of the groves and grottos at Verſailles, came hither on a miſſion to improve our taſte. He planted St. James's and Greenwich Parks—no great monuments of his invention.

To do farther juſtice to Sir William Temple, I muſt not omit what he adds. "What I have ſaid of the beſt forms of gardens is meant only of ſuch as are in ſome ſort regular; for there may be other forms wholly irregular, that may, for aught I know, have more beauty than any of the others; but they muſt owe it to ſome extraordinary diſpoſitions of nature in the ſeat, or ſome great race of fancy or judgment in the contrivance, which may reduce many diſagreeing parts into ſome figure, which ſhall yet, upon the whole, be very agreeable. Something of this I have ſeen in ſome places, but heard more of it from others, who have lived much among the Chineſes, a people whoſe way of thinking ſeems to lie as wide of ours in Europe as their country does. Their greateſt reach of imagination is employed in contriving figures, where the beauty ſhall be great and ſtrike the eye, but without any order or diſpoſition of parts, that ſhall be commonly or eaſily obſerved. And though we have hardly any notion of this ſort of beauty, yet they have a particular word to expreſs it; and where they find it hit their eye at firſt ſight, they ſay the Sharawadgi is fine or is admirable, or any ſuch expreſſion of eſteem:—but I ſhould hardly adviſe any of theſe attempts in the figure of gardens among us; they are adventures of too hard atchievement for any common hands; and though there may be more honour if they ſucceed well, yet there is more diſhonour if they fail, and it is twenty to one they will; whereas in regular figures it is hard to make any great and remarkable faults."

Fortunately Kent and a few others were not quite ſo timid, or we might ſtill be going up and down ſtairs in the open air.

It is true, we have heard much lately, as Sir William Temple did, of irregularity and imitations of nature in the gardens or grounds of the Chineſe. The former is certainly true: they are as whimſically irregular as European gardens are formally uniform, and unvaried:—but with regard to nature, it ſeems as much avoided, as in the ſquares and oblongs and ſtrait lines of our anceſtors. An artificial perpendicular rock ſtarting out of a flat plain, and connected with nothing, often pierced through in various places with oval hollows, has no more pretenſion to be deemed natural than a lineal terraſs or a parterre. The late Mr. Joſeph Spence, who had both taſte and zeal for the preſent ſtyle, was ſo perſuaded of the Chineſe Emperor's pleaſure-ground being laid out on principles reſembling ours, that he

tranſlated

tranſlated and publiſhed, under the name of Sir Harry Beaumont, a particular account of that incloſure from the Collection of the Letters of the Jeſuits. I have looked it over, and, except a determined irregularity, can find nothing in it that gives me any idea of attention being paid to nature. It is of vaſt circumference, and contains 200 palaces, beſides as many contiguous for the eunuchs, all gilt, painted, and varniſhed. There are raiſed hills from 20 to 60 feet high, ſtreams and lakes, and one of the latter five miles round. Theſe waters are paſſed by bridges:—but even their bridges muſt not be ſtrait—they ſerpentize as much as the rivulets, and are ſometimes ſo long as to be furniſhed with reſting-places, and begin and end with triumphal arches. Methinks a ſtrait canal is as rational at leaſt as a meandering bridge. The colonades undulate in the ſame manner. In ſhort, this pretty gaudy ſcene is the work of caprice and whim, and, when we reflect on their buildings, preſents no image but that of unſubſtantial tawdrineſs. Nor is this all. Within this fantaſtic Paradiſe is a ſquare town, each ſide a mile long. Here the eunuchs of the court, to entertain his Imperial Majeſty with the buſtle and buſineſs of the capital in which he reſides, but which it is not of his dignity ever to ſee, act merchants and all ſorts of trades, and even deſignedly exerciſe for his royal amuſement every art of knavery that is practiſed under his auſpicious government. Methinks this is the childiſh ſolace and repoſe of grandeur, not a retirement from affairs to the delights of rural life. Here too his Majeſty plays at agriculture: there is a quarter ſet apart for that purpoſe; the eunuchs ſow, reap, and carry in their harveſt, in the imperial preſence; and his Majeſty returns to Pekin, perſuaded that he has been in the country *.

Having

* The French have of late years adopted our ſtyle in gardens, but chuſing to be fundamentally obliged to more remote rivals, they deny us half the merit, or rather the originality of the invention, by aſcribing the diſcovery to the Chineſe, and by calling our taſte in gardening Le Gout Anglo-Chinois. I think I have ſhewn that this is a blunder, and that the Chineſe have paſſed to one extremity of abſurdity, as the French and all antiquity had advanced to the other, both being equally remote from nature; regular formality is the oppoſite point to fantaſtic Sharawadgis. The French, indeed, during the faſhionable paroxyſm of philoſophy, have ſurpaſſed us, at leaſt in meditation on the art. I have peruſed a grave treatiſe of recent date, in which the author, extending his views beyond mere luxury and amuſement, has endeavoured to inſpire his countrymen, even in the gratification of their expenſive pleaſures, with benevolent projects. He propoſes to them to combine gardening with charity, and to make every ſtep of their walks an act of generoſity and a leſſon of morality. Inſtead of adorning favourite points with a heathen temple, a Chineſe pagoda, a Gothic tower, or fictitious bridge, he propoſes to them at the

firſt

Having thus cleared my way by aſcertaining what have been the ideas on gardening in all ages, as far as we have materials to judge by, it remains to ſhew to what degree Mr. Kent invented the new ſtyle, and what hints he had received to ſuggeſt and conduct his undertaking.

We have ſeen what Moor-park was, when pronounced a ſtandard. But as no ſucceeding generation in an opulent and luxurious country contents itſelf with the perfection eſtabliſhed by its anceſtors, more perfect perfection was ſtill ſought; and improvements had gone on, till London and Wiſe had ſtocked our gardens with giants, animals, monſters*, coats of arms, and mottos, in yew, box and holly. Abſurdity could go no farther, and the tide turned. Bridgman, the next faſhionable deſigner of gardens, was far more chaſte; and whether from good ſenſe, or that the nation had been ſtruck and reformed by the admirable paper in the Guardian, N° 173, he baniſhed verdant ſculpture, and did not even revert to the ſquare preciſion of the foregoing age. He enlarged his plans, diſdained to make every diviſion tally to its oppoſite, and though he ſtill adhered much to ſtrait walks with high clipped hedges, they were only his great lines; the reſt he diverſified by wil-

firſt reſting-place to erect a ſchool, a little farther to found an academy, at a third diſtance a manufacture, and at the termination of the park to endow an hoſpital. Thus, ſays he, the proprietor would be led to meditate, as he ſaunters, on the different ſtages of human life, and both his expence and thoughts would march in a progreſſion of patriotic acts and reflections. When he was laying out ſo magnificent, charitable, and philoſophic an Utopian villa, it would have coſt no more to have added a foundling-hoſpital, a ſenate-houſe, and a burying-ground.—If I ſmile at ſuch viſions, ſtill one muſt be glad that in the whirl of faſhions, beneficence ſhould have its turn in vogue; and though the French treat the Virtues like every thing elſe, but as an object of mode, it is to be hoped that they too will, every now and then, come into faſhion again. The author I have been mentioning reminds me of a French gentleman, who ſome years ago made me a viſit at Strawberry-hill. He was ſo complaiſant as to commend the place, and to approve our taſte in gardens—but in the ſame ſtyle of thinking with the above-cited author, he ſaid, "I do not like your imaginary temples and fictitious terminations of views: I would have real points of view with moving objects; for inſtance, here I would have—(I forget what)—and there a watering-place." "That is not ſo eaſy (I replied); one cannot oblige others to aſſemble at ſuch or ſuch a ſpot for one's amuſement—however, I am glad you would like a watering-place, for *there* happens to be one: in that creek of the Thames the inhabitants of the village do actually water their horſes; but I doubt whether, if it were not *convenient* to them to do ſo, they would frequent the ſpot only to enliven my proſpect."—Such Gallo-Chinois gardens, I apprehend, will rarely be executed.

† On the piers of a garden-gate not far from Paris I obſerved two very coquet ſphinxes. Theſe lady monſters had ſtraw hats gracefully ſmart on one ſide of their heads, and ſilken cloaks half veiling their necks; all executed in ſtone.

derneſs,

derneſs, and with looſe groves of oak, though ſtill within ſurrounding hedges. I have obſerved in the garden * at Gubbins in Hertfordſhire many detached thoughts, that ſtrongly indicate the dawn of modern taſte. As his reformation gained footing, he ventured farther, and in the royal garden at Richmond dared to introduce cultivated fields, and even morſels of a foreſt appearance, by the ſides of thoſe endleſs and tireſome walks, that ſtretched out of one into another without intermiſſion. But this was not till other innovators had broke looſe too from rigid ſymmetry.

But the capital ſtroke, the leading ſtep to all that has followed, was [I believe the firſt thought was Bridgman's] the deſtruction of walls for boundaries, and the invention of foſſes —an attempt then deemed ſo aſtoniſhing, that the common people called them Ha! Ha's! to expreſs their ſurprize at finding a ſudden and unperceived check to their walk.

One of the firſt gardens planted in this ſimple though ſtill formal ſtyle, was my father's at Houghton. It was laid out by Mr. Eyre, an imitator of Bridgman. It contains three-and-twenty acres, then reckoned a conſiderable portion.

I call a ſunk fence the leading ſtep, for theſe reaſons. No ſooner was this ſimple enchantment made, than levelling, mowing, and rolling, followed. The contiguous ground of the park without the ſunk fence was to be harmonized with the lawn within; and the garden in its turn was to be ſet free from its prim regularity, that it might aſſort with the wilder country without. The ſunk fence aſcertained the ſpecific garden, but that it might not draw too obvious a line of diſtinction between the neat and the rude, the contiguous out-lying parts came to be included in a kind of general deſign; and when nature was taken into the plan, under improvements, every ſtep that was made, pointed out new beauties and inſpired new ideas. At that moment appeared Kent, painter enough to taſte the charms of landſcape, bold and opinionative enough to dare and to dictate, and born with a genius to ſtrike out a great ſyſtem from the twilight of imperfect eſſays. He leaped the fence, and ſaw that all nature was a garden. He felt the delicious contraſt of hill and valley changing imperceptibly into each other, taſted the beauty of the gentle ſwell or concave ſcoop, and remarked how looſe groves crowned an eaſy eminence with happy ornament, and while

* The ſeat of the late Sir Jeremy Sambroke. It had formerly belonged to Lady More, mother-in-law of Sir Thomas More, and had been tyrannically wrenched from her by Henry VIII. on the execution of Sir Thomas, though not her ſon, and though her jointure from a former huſband.

they

they called in the diſtant view between their graceful ſtems, removed and extended the perſpective by deluſive compariſon.

Thus the pencil of his imagination beſtowed all the arts of landſcape on the ſcenes he handled. The great principles on which he worked were perſpective, and light and ſhade. Groupes of trees broke too uniform or too extenſive a lawn; evergreens and woods were oppoſed to the glare of the champain; and where the view was leſs fortunate, or ſo much expoſed as to be beheld at once, he blotted out ſome parts by thick ſhades, to divide it into variety, or to make the richeſt ſcene more enchanting by reſerving it to a farther advance of the ſpectator's ſtep. Thus, ſelecting favourite objects, and veiling deformities by ſcreens of plantation; ſometimes allowing the rudeſt waſte to add its foil to the richeſt theatre; he realized the compoſitions of the greateſt maſters in painting. Where objects were wanting to animate his horizon, his taſte as an architect could beſtow immediate termination. His buildings, his ſeats, his temples, were more the works of his pencil than of his compaſſes. We owe the reſtoration of Greece and the diffuſion of architecture to his ſkill in landſcape.

But of all the beauties he added to the face of this beautiful country, none ſurpaſſed his management of water. Adieu to canals, circular baſons, and caſcades tumbling down marble ſteps, that laſt abſurd magnificence of Italian and French villas. The forced elevation of cataracts was no more. The gentle ſtream was taught to ſerpentize ſeemingly at its pleaſure, and where diſcontinued by different levels, its courſe appeared to be concealed by thickets properly interſperſed, and glittered again at a diſtance where it might be ſuppoſed naturally to arrive. Its borders were ſmoothed, but preſerved their waving irregularity. A few trees ſcattered here and there on its edges ſprinkled the tame bank that accompanied its meanders; and when it diſappeared among the hills, ſhades deſcending from the heights leaned towards its progreſs, and framed the diſtant point of light under which it was loſt, as it turned aſide to either hand of the blue horizon.

Thus, dealing in none but the colours of nature, and catching its moſt favourable features, men ſaw a new creation opening before their eyes. The living landſcape was chaſtened or poliſhed, not transformed. Freedom was given to the forms of trees; they extended their branches unreſtricted, and where any eminent Oak, or maſter Beech, had eſcaped maiming and ſurvived the foreſt, buſh and bramble was removed, and all its honours were reſtored to diſtinguiſh and ſhade the plain. Where the united plumage of an ancient wood extended wide its undulating canopy, and ſtood venerable in its darkneſs, Kent

thinned

thinned the foremoſt ranks, and left but ſo many detached and ſcattered trees, as ſoftened the approach of gloom, and blended a chequered light with the thus lengthened ſhadows of the remaining columns.

Succeeding artiſts have added new maſter-ſtrokes to theſe touches; perhaps improved or brought to perfection ſome that I have named. The introduction of foreign trees and plants, which we owe principally to Archibald Duke of Argyle, contributed eſſentially to the richneſs of colouring ſo peculiar to our modern landſcape. The mixture of various greens, the contraſt of forms between our foreſt-trees and the northern and Weſt-Indian firs and pines, are improvements more recent than Kent, or but little known to him. The Weeping-willow and every florid ſhrub, each tree of delicate or bold leaf, are new tints in the compoſition of our gardens. The laſt century was certainly acquainted with many of thoſe rare plants we now admire. The Weymouth-pine has long been naturalized here; the patriarch plant ſtill exiſts at Longleat. The light and graceful Acacia was known as early; witneſs thoſe ancient ſtems in the court of Bedford-houſe in Bloomſbury-ſquare; and in the Biſhop of London's garden at Fulham are many exotics of very ancient date. I doubt therefore whether the difficulty of preſerving them in a clime ſo foreign to their nature did not convince our anceſtors of their inutility in general; unleſs the ſhapelineſs of the lime and horſe-cheſnut, which accorded ſo well with eſtabliſhed regularity, and which thence and from their novelty grew in faſhion, did not occaſion the neglect of the more curious plants.

But juſt as the encomiums are that I have beſtowed on Kent's diſcoveries, he was neither without aſſiſtance or faults. Mr. Pope undoubtedly contributed to form his taſte. The deſign of the Prince of Wales's garden at Carlton-houſe was evidently borrowed from the Poet's at Twickenham. There was a little of affected modeſty in the latter, when he ſaid, of all his works he was moſt proud of his garden. And yet it was a ſingular effort of art and taſte to impreſs ſo much variety and ſcenery on a ſpot of five acres. The paſſing through the gloom from the grotto to the opening day, the retiring and again aſſembling ſhades, the duſky groves, the larger lawn, and the ſolemnity of the termination at the cypreſſes that lead up to his mother's tomb, are managed with exquiſite judgment; and though Lord Peterborough aſſiſted him

> To form his quincunx and to rank his vines,

thoſe were not the moſt pleaſing ingredients of his little perſpective.

I do

I do not know whether the diſpoſition of the garden at Rouſham, laid out for General Dormer, and in my opinion the moſt engaging of all Kent's works, was not planned on the model of Mr. Pope's, at leaſt in the opening and retiring ſhades of Venus's Vale. The whole is as elegant and antique as if the Emperor Julian had ſelected the moſt pleaſing ſolitude about Daphne to enjoy a philoſophic retirement.

That Kent's ideas were but rarely great, was in ſome meaſure owing to the novelty of his art. It would have been difficult to have tranſported the ſtyle of gardening at once from a few acres to tumbling of foreſts: and though new faſhions like new religions, [which are new faſhions] often lead men to the moſt oppoſite exceſſes, it could not be the caſe in gardening, where the experiments would have been ſo expenſive. Yet it is true too that the features in Kent's landſcapes were ſeldom majeſtic. His clumps were puny, he aimed at immediate effect, and planted not for futurity. One ſees no large woods ſketched out by his direction. Nor are we yet entirely riſen above a too great frequency of ſmall clumps, eſpecially in the elbows of ſerpentine rivers. How common to ſee three or four beeches, then as many larches, a third knot of cypreſſes, and a revolution of all three! Kent's laſt deſigns were in a higher ſtyle, as his ideas opened on ſucceſs. The north terras at Claremont was much ſuperior to the reſt of the garden.

A return of ſome particular thoughts was common to him with other painters, and made his hand known. A ſmall lake edged by a winding bank with ſcattered trees that led to a ſeat at the head of the pond, was common to Claremont, Eſher, and others of his deſigns. At Eſher,

> Where Kent and Nature vied for Pelham's love,

the proſpects more than aided the Painter's genius—they marked out the points where his art was neceſſary or not; but thence left his judgment in poſſeſſion of all its glory.

Having routed profeſſed art, for the modern gardener exerts his talents to conceal his art, Kent, like other reformers, knew not how to ſtop at the juſt limits. He had followed Nature, and imitated her ſo happily, that he began to think all her works were equally proper for imitation. In Kenſington garden he planted dead trees, to give a greater air of truth to the ſcene—but he was ſoon laughed out of this exceſs. His ruling principle was, that Nature abhors a ſtrait line. His mimics, for every genius has his apes, ſeemed to think that ſhe could love nothing but what was crooked. Yet ſo many men of taſte of all ranks devoted themſelves to the new improvements, that it is ſurprizing how much beauty has been ſtruck out, with how

few abſurdities. Still in ſome lights the reformation ſeems to me to have been puſhed too far. Though an avenue croſſing a park or ſeparating a lawn, and intercepting views from the ſeat to which it leads, are capital faults, yet a great avenue * cut through woods, perhaps before entering a park, has a noble air, and

> Like footmen running before coaches
> To tell the inn what lord approaches,

announces the habitation of ſome man of diſtinction. In other places the total baniſhment of all particular neatneſs immediately about a houſe, which is frequently left gazing by itſelf in the middle of a park, is a defect. Sheltered and even cloſe walks in ſo very uncertain a climate as ours, are comforts ill exchanged for the few pictureſque days that we enjoy: and whenever a family can purloin a warm and even ſomething of an old-faſhioned garden from the landſcape deſigned for them by the undertaker in faſhion, without interfering with the picture, they will find ſatisfactions on thoſe days that do not invite ſtrangers to come and ſee their improvements.

Fountains have with great reaſon been baniſhed from gardens as unnatural; but it ſurpriſes me that they have not been allotted to their proper poſitions, to cities, towns, and the courts of great houſes, as proper accompaniments to architecture, and as works of grandeur in themſelves. Their decorations admit the utmoſt invention, and when the waters are thrown up to different ſtages, and tumble over their border, nothing has a more impoſing or a more refreſhing ſound. A palace demands its external graces and attributes, as much as a garden. Fountains and cypreſſes peculiarly become buildings, and no man can have been at Rome, and ſeen the vaſt baſons of marble daſhed with perpetual caſcades in the area of St. Peter's, without retaining an idea of taſte and ſplendor. Thoſe in the Piazza Navona are as uſeful as ſublimely conceived.

Grottos in this climate are receſſes only to be looked at tranſiently. When they are regularly compoſed within of ſymmetry and architecture, as in Italy, they are only ſplendid improprieties. The moſt judiciouſly, indeed moſt fortunately,

* Of this kind one of the moſt noble is that of Stanſtead, the ſeat of the Earl of Halifax, traverſing an ancient wood for two miles and bounded by the ſea. The very extenſive lawns at that ſeat, richly incloſed by venerable beech woods, and chequered by ſingle beeches of vaſt ſize, particularly when you ſtand in the portico of the temple and ſurvey the landſcape that waſtes itſelf in rivers of broken ſea, recall ſuch exact pictures of Claud Lorrain, that it is difficult to conceive that he did not paint them from this very ſpot.

placed

placed grotto, is that at Stourhead, where the river burſts from the urn of its god, and paſſes on its courſe through the cave.

But it is not my buſineſs to lay down rules for gardens, but to give the hiſtory of them. A ſyſtem of rules puſhed to a great degree of refinement, and collected from the beſt examples and practice, has been lately given in a book intituled, Obſervations on Modern Gardening. The work is very ingeniouſly and carefully executed, and in point of utility rather exceeds than omits any neceſſary directions. The author will excuſe me if I think it a little exceſs, when he examines that rude and unappropriated ſcene of Matlock-bath, and criticiſes Nature for having beſtowed on the rapid river Derwent too many caſcades. How can this cenſure be brought home to gardening? The management of rocks is a province can fall to few directors of gardens; ſtill in our diſtant provinces ſuch a guide may be neceſſary.

The author divides his ſubject into gardens, parks, farms, and ridings. I do not mean to find fault with this diviſion. Directions are requiſite to each kind, and each has its department at many of the great ſcenes from whence he drew his obſervations. In the hiſtoric light, I diſtinguiſh them into the garden that connects itſelf with a park, into the ornamented farm, and into the foreſt or ſavage garden. Kent, as I have ſhewn, invented or eſtabliſhed the firſt ſort. Mr. Philip Southcote founded the ſecond or *ferme ornée* *, of which is a very juſt deſcription in the author I have been quoting. The third I think he has not enough diſtinguiſhed. I mean that kind of alpine ſcene, compoſed almoſt wholly of pines and firs, a few birch, and ſuch trees as aſſimilate with a ſavage and mountainous country. Mr. Charles Hamilton, at Pain's-hill, in my opinion has given a perfect example of this mode in the utmoſt boundary of his garden. All is great and foreign and rude; the walks ſeem not deſigned, but cut through the wood of pines; and the ſtyle of the whole is ſo grand, and conducted with ſo ſerious an air of wild and uncultivated extent, that when you look down on this ſeeming foreſt, you are amazed to find it contain a very few acres. In general, except as a ſcreen to conceal ſome deformity, or as a ſhelter in winter, I am not fond of total plantations of ever-greens. Firs in particular form a very ungraceful ſummit, all broken into angles.

Sir Henry Engleſield was one of the firſt improvers on the new ſtyle, and ſelected with ſingular taſte that chief beauty of all gardens, proſpect and fortunate points of view: we tire of

* At Woburn-farm in Surry.

all the painter's art when it wants theſe finiſhing touches. The faireſt ſcenes, that depend on themſelves alone, weary when often ſeen. The Doric portico, the Palladian bridge, the Gothic ruin, the Chineſe pagoda, that ſurpriſe the ſtranger, ſoon loſe their charms to their ſurfeited maſter. The lake that floats the valley is ſtill more lifeleſs, and its Lord ſeldom enjoys his expence but when he ſhews it to a viſitor. But the ornament whoſe merit ſooneſt fades, is the hermitage or ſcene adapted to contemplation. It is almoſt comic to ſet aſide a quarter of one's garden to be melancholy in. Proſpect, animated proſpect, is the theatre that will always be the moſt frequented. Proſpects formerly were ſacrificed to convenience and warmth. Thus Burleigh ſtands behind a hill, from the top of which it would command Stamford. Our anceſtors, who reſided the greateſt part of the year at their ſeats, as others did two years together or more, had an eye to comfort firſt, before expence. Their vaſt manſions received and harboured all the younger branches, the dowagers and ancient maiden aunts of the families, and other families viſited them for a month together. The method of living is now totally changed, and yet the ſame ſuperb palaces are ſtill created, becoming a pompous ſolitude to the owner, and a tranſient entertainment to a few travellers.

If any incident aboliſhes or reſtrains the modern ſtyle of gardening, it will be this circumſtance of ſolitarineſs. The greater the ſcene, the more diſtant it is probably from the capital, in the neighbourhood of which land is too dear to admit conſiderable extent of property. Men tire of expence that is obvious to few ſpectators. Still there is a more imminent danger that threatens the preſent, as it has ever done all taſte—I mean the purſuit of variety. A modern French writer has in a very affected phraſe given a juſt account of this, I will call it, diſtemper. He ſays, *l'ennui du beau amene le gout du ſingulier*. The noble ſimplicity of the Auguſtan age was driven out by falſe taſte. The gigantic, the puerile, the quaint, and at laſt the barbarous and the monkiſh, had each their ſucceſſive admirers. Muſic has been improved, till it is a ſcience of tricks and ſlight of hand: the ſober greatneſs of Titian is loſt, and painting ſince Carlo Maratti has little more relief than Indian paper. Borromini twiſted and * curled architecture, as if it was ſubject to the change of faſhions like a head of hair. If we once loſe ſight of the propriety of landſcape in our gardens, we ſhall wander into all the fantaſtic Sharawadgis of the

* In particular, he inverted the volutes of the Ionic order.

Chineſe.

Chineſe. We have diſcovered the point of perfection. We have given the true model of gardening to the world: let other countries mimic or corrupt our taſte; but let it reign here on its verdant throne, original by its elegant ſimplicity, and proud of no other art than that of ſoftening Nature's harſhneſſes, and copying her graceful touch.

The ingenious author of the Obſervations on Modern Gardening is, I think, too rigid when he condemns ſome deceptions, becauſe they have been often uſed. If thoſe deceptions, as a feigned ſteeple of a diſtant church, or an unreal bridge to diſguiſe the termination of water, were intended only to ſurpriſe, they were indeed tricks that would not bear repetition; but being intended to improve the landſcape, are no more to be condemned becauſe common, than they would be if employed by a painter in the compoſition of a picture. Ought one man's garden to be deprived of a happy object, becauſe that object has been employed by another? The more we exact novelty, the ſooner our taſte will be vitiated. Situations are every where ſo various, that there never can be a ſameneſs, while the diſpoſition of the ground is ſtudied and followed, and every incident of view turned to advantage.

In the mean time how rich, how gay, how pictureſque the face of the country! The demolition of walls laying open each improvement, every journey is made through a ſucceſſion of pictures; and even where taſte is wanting in the ſpot improved, the general view is embelliſhed by variety. If no relapſe to barbariſm, formality, and ſecluſion is made, what landſcapes will dignify every quarter of our iſland, when the daily plantations that are making have attained venerable maturity! A ſpecimen of what our gardens will be, may be ſeen at Petworth, where the portion of the park neareſt the houſe has been allotted to the modern ſtyle. It is a garden of oaks two hundred years old. If there is a fault in ſo auguſt a fragment of improved nature, it is, that the ſize of the trees are out of all proportion to the ſhrubs and accompanyments. In truth, ſhrubs ſhould not only be reſerved for particular ſpots and home delight, but are paſſed their beauty in leſs than twenty years.

Enough has been done to eſtabliſh ſuch a ſchool of landſcape, as cannot be found on the reſt of the globe. If we have the ſeeds of a Claud or a Gaſpar amongſt us, he muſt come forth. If wood, water, groves, vallies, glades, can inſpire or poet or painter, this is the country, this is the age to produce them. The flocks, the herds, that now are admitted into, now graze on the borders of our cultivated plains, are ready before the painter's eyes, and groupe themſelves to animate his picture.

One misfortune in truth there is that throws a difficulty on the artiſt. A principal beauty in our gardens is the lawn and ſmoothneſs of turf: in a picture it becomes a dead and uniform ſpot, incapable of *chiaro ſcuro*, and to be broken inſipidly by children, dogs, and other unmeaning figures.

Since we have been familiarized to the ſtudy of landſcape, we hear leſs of what delighted our ſportſmen-anceſtors, *a fine open country*. Wiltſhire, Dorſetſhire, and ſuch ocean-like extents, were formerly preferred to the rich blue proſpects of Kent, to the Thames-watered views in Berkſhire, and to the magnificent ſcale of Nature in Yorkſhire. An open country is but a canvaſs on which a landſcape might be deſigned.

It was fortunate for the country and Mr. Kent, that he was ſucceeded by a very able maſter; and did living artiſts come within my plan, I ſhould be glad to do juſtice to Mr. Brown; but he may be a gainer, by being reſerved for ſome abler pen.

In general it is probably true, that the poſſeſſor, if he has any taſte, muſt be the beſt deſigner of his own improvements. He ſees his ſituation in all ſeaſons of the year, at all times of the day. He knows where beauty will not claſh with convenience, and obſerves in his ſilent walks or accidental rides a thouſand hints that muſt eſcape a perſon who in a few days ſketches out a pretty picture, but has not had leiſure to examine the details and relations of every part.

Truth, which, after the oppoſition given to moſt revolutions, preponderates at laſt, will probably not carry our ſtyle of garden into general uſe on the continent. The expence is only ſuited to the opulence of a free country, where emulation reigns among many independent particulars. The keeping of our grounds is an obſtacle, as well as the coſt of the firſt formation. A flat country, like Holland, is incapable of landſcape. In France and Italy the nobility do not reſide much, and make ſmall expence, at their villas. I ſhould think the little princes of Germany, who ſpare no profuſion on their palaces and country-houſes, moſt likely to be our imitators; eſpecially as their country and climate bears in many parts reſemblance to ours. In France, and ſtill leſs in Italy, they could with difficulty attain that verdure which the humidity of our clime beſtows as the ground-work of our improvements. As great an obſtacle in France is the embargo laid on the growth of their trees. As after a certain age, when they would riſe to bulk, they are liable to be marked by the crown's ſurveyors as royal timber, it is a curioſity to ſee an old tree. A landſcape and a crown-ſurveyor are incompatible.

GENERAL PRINCIPLES.

ARTS merely imitative have but one principle to work by, the *nature* or actual ſtate of the thing to be imitated. In works of deſign and invention, another principle takes the lead, which is *taſte*. And in every work in which mental gratification is not the only object, a third principle ariſes, *utility*, or the concomitant purpoſe for which the production is intended.

The art of *Gardening* is ſubject to theſe three principles: to nature, as being an imitative art; to utility, as being productive of objects which are uſeful as well as ornamental; and to taſte, in the choice of fit objects to be imitated, and of fit purpoſes to be purſued, as alſo in the compoſition of the ſeveral objects and ends propoſed, ſo as to produce the degree of gratification and uſe beſt ſuited to the *place* and to the *purpoſe* for which it is about to be ornamented: thus, a Hunting-Box and a Summer Villa,—an Ornamented Cottage and a Manſion, require a different *ſtyle* of ornament, a different *choice* of objects, a different *taſte*. Nor can taſte be confined to nature and utility,—the place and the purpoſe, alone; the object of the Polite Arts is the gratification of the human mind, and the ſtate of refinement of the mind itſelf muſt be conſidered. Men's notions vary, not only in different ages, but individually in the ſame age: what would have gratified mankind a century ago in this country, will not pleaſe them now; whilſt the country 'Squire and the Fine Gentleman of the

preſent day require a different kind of gratification: nevertheleſs, under theſe various circumſtances, every thing may be *natural*, and every thing adapted to the *place*; the *degree of refinement* conſtituting the principal difference.

We do not mean to enter into any argument about whether a ſtate of ruſticity or a ſtate of refinement, whether the foreſt or the city be the ſtate for which the Author of Nature intended the human ſpecies: mankind are now found in every ſtate, and in every ſtage of ſavageneſs, ruſticity, civilization, and refinement; and the particular ſtyle of ornament we wiſh to recommend is, that which is beſt adapted to the ſtate of refinement that now prevails in this country; leaving individuals to vary it as their own peculiar taſtes may direct.

Before we proceed farther, it may be neceſſary to explain what it is we mean by *nature* and *natural*. If in the idea of *natural ſtate* we include *ground*, *water*, and *wood*, no ſpot in this iſland can be ſaid to be in a *ſtate of nature*. The *ground*, or the ſurface of the earth as left by Nature (or the convulſions of Nature) remains, it is true, with but few alterations; yet even here (eſpecially among rocks and ſteep acclivities, the nobleſt features in the face of Nature) we frequently find the hand of Art has been at work. Again, though rivers may ſtill run in the channels, or nearly in the channels, into which Nature directed them; yet *waters* taken generally have been greatly controuled by human

art.

art. And with reſpect to *wood* we may venture to ſay, that there is not a tree, perhaps not a ſtick, now ſtanding upon the face of the country which owes its identical ſtate of exiſtence to Nature alone. Wherever cultivation has ſet its foot,—wherever the plow and ſpade have laid fallow the ſoil,—Nature is become extinct; and it is in neglected or leſs cultivated places, in moſſes and mountains, in foreſts and parochial waſtes, we are to ſeek for any thing *near* a ſtate of Nature—we mean in this country: and who would look for the ſtandard of taſte, who expect to find the lovely mixture of wood and lawn ſo delightful to the human eye, in the endleſs woods and the impenetrable roughneſſes of America? We may therefore conclude, that the objects of our imitation are not to be ſought for in uncultivated Nature. The inhoſpitable heaths of Weſtmoreland may aſtoniſh for the moment, may be the pleaſing amuſement of a ſummer's day, and agreeable objects in their places; but are they *objects of imitation* under the window of a drawing-room? Rather let us turn our eyes to well-ſoiled, well-wooded, well-cultivated ſpots, where Nature and Art are happily blended; leaving thoſe who are admirers of Art merely imitative to contemplate Nature upon canvas; and thoſe who wiſh for Nature in a ſtate of total neglect, to take up their reſidence in the woods of America.

Far be it from us to rebel againſt the laws of Nature, or to queſtion in any wiſe the perfection of the Deity. A ſtate of nature, in the eye of Omniſcience, is undoubtedly a ſtate of perfection. But

in

in the littleneſs of human conception, ſomething is wanted to bring down natural objects to the level of our comprehenſion. What object in nature is in a ſtate of *human perfection?* Even in the fineſt woman a female critic will diſcover *faults:* and in the handſomeſt horſe a buyer will point out what in the human eye appear as *imperfections.* Did ever a landſcape painter find a ſcene, purely natural, which might not have been improved by the hand of Art, or which he did not actually improve by a ſtroke of his pencil? A ſtriking feature may ſometimes be caught where little addition is wanted; but in a rich pictureſque view, which will bear to be placed repeatedly under the eye, a portion of *lawn* is requiſite*, and in the wilds of nature we know of no ſuch thing.

Therefore our idea of *natural* is not confined to *neglected* nature, but extends to *cultivated* nature—to

* Mr. GRAY, whoſe letters to Dr. WARTON, deſcribing the natural ſcenery of the North of England, have been held out as models of their kind, corroborates our idea.

" Juſt beyond this opens one of the ſweeteſt landſcapes that art ever attempted to imitate. The boſom of the mountain ſpreading here into a broad baſon, diſcovers in the midſt Graſmere Water: its margin is hollowed into ſmall bays, with bold eminences, ſome of rock, ſome of *ſoft turf*, that half conceal and vary the figure of the little lake they command: from the ſhore a low promontory puſhes itſelf far into the water, and on it ſtands a white village with the pariſh-church riſing in the midſt of it: hanging incloſures, corn-fields, and *meadows green as emerald*, with their trees, and hedges, and cattle, fill up the whole ſpace from the edge of the water: and juſt oppoſite to you is a large farm-houſe at the bottom of a ſteep *ſmooth lawn*, emboſomed in old woods which climb half way up the mountain-ſide, and diſcover above them a broken line of crags that crown the ſcene,

to nature *touched* by art, and rendered intelligible to human perception: and we venture to recommend, as objects moſt worthy the ſtudy and imitation of the artiſts, ſuch *paſſages in nature* as give the higheſt degree of gratification to cultivated minds in general: paſſages like the following—no matter whether produced by *accident* or *deſign*—no matter whether it occur in a foreſt or a park—or whether it occupy the corner of a common, or fill up a conſpicuous quarter of an ornamental ground:—a lofty wood hanging on a bold aſcent; its broken margin flowing negligently over the boſom of the valley, lying broad and bare beneath, and falling gently to the brink of a river, winding gracefully along the bottom.——We further beg leave to add in this place, that if a paſſage like this—eſpecially if the lawn be ſpread with cattle, and the whole ſcene enlivened by the preſence of the ſun, and animated by the fleeting ſhadows of the clouds ſweeping its varied ſurface--is incapable of conveying a degree of gratification to the mind of any of our Readers, we have no hope of entertaining ſuch a mind in this part of our performance.

ſcene. Not a ſingle red tile, no flareing Gentleman's houſe, or garden-walls, break in upon the repoſe of this little unſuſpected paradiſe; but all is peace, ruſticity, and happy poverty in its neateſt, moſt becoming attire."

Gray's Letters to Dr. Warton, p. 181.

SITE.

BY *the Site* we mean, not only the *place* itſelf, but likewiſe ſo much of the *ſurrounding country* as falls within the view.

If the place be already ſuited to the ſurrounding country, and to the particular purpoſe for which it is intended, the aſſiſtance of art is not wanted, the buſineſs of the Gardener is precluded. If the Site be *nearly* in this ſtate, the *touchings* of art are only required. But if the place be greatly deficient, as places in general are, then it is the duty of the artiſt "to ſupply its defects, to correct its faults, and to improve its beauties."

Every PLACE conſiſts either of *ground* alone, or of *ground* and *water*, or of *ground* and *wood*, or of *ground*, *water*, and *wood*.

GROUND.

BY Ground is meant that portion of naked ſurface, which is included within the place to be improved; whether that ſurface be *ſwamp*, *lawn*, *roughet*, *broken-ground*, or *rock*; and whether it be a *hill*, a *valley*, a *plain*, or a compoſition of *ſwells*, *dips*, and *levels*.

Mr. GILPIN, in his excellent *Obſervations on the Wye*, *&c.* (page 62) gives us a ſublime idea of what ground ought to be.—"Nothing, ſays he,

gives

gives ſo juſt an idea of the beautiful ſwellings of ground, as thoſe of water, where it has ſufficient room to undulate and expand. In ground which is compoſed of very refractory materials, you are preſented often with harſh lines, angular inſertions, and diſagreeable abruptneſſes. In water, whether in gentle or in agitated motion, all is eaſy, all is ſoftened into itſelf; and the hills and the vallies play into each other, in a variety of the moſt beautiful forms. In agitated water, abruptneſſes indeed there are, but yet they are ſuch abruptneſſes as, in ſome part or other, unite properly with the ſurface around them; and are on the whole peculiarly harmonious. Now, if the ocean in any of theſe ſwellings and agitations could be arreſted and fixed, it would produce that pleaſing variety which we admire in ground. Hence it is common to fetch our images from water, and apply them to land: we talk of an undulating line, a playing lawn, and a billowy ſurface; and give a much ſtronger and more adequate idea by ſuch imagery, than plain language could poſſibly preſent."

The exertions of art, however, are here inadequate and the artiſt ought not to attempt to create a *mountain*, a *valley*, or a *plain*; and ſhould but rarely meddle even with the ſmaller inequalities of grounds. The *rock* ſtands equally above the reach of human art, and to attempt to make or unmake it is abſurd. *Roughets* and *broken-ground* may generally be reduced to lawn, or hid with wood; and

a *ſwamp*

a *ſwamp* may be drained, or covered with water; whilſt *lawn* may be variegated at pleaſure by wood, and ſometimes by water.

WATER.

THIS is either *ſea*, *lake*, *pool*, *river*, *rivulet*, or *rill*.

A broad *lake* and a copious *river* are too great for human art to cope with: nevertheleſs, the margin and the bank may be ornamented, and the ſurface of the water diſcloſed to advantage. *Rivulets* are often in themſelves delightful, and, where broad waters are wanted, may be turned to great advantage by art. * Stowe affords a proof of what may be accompliſhed even with a *rill*. If the baſe of the valley be broad, a lake may be made; if narrow, a river.

In countries where natural waters abound, art may improve, but ſhould not attempt to create: but in places naturally dry, the artiſt may frequently call forth the creative powers with ſucceſs. In any ſituation, however, art muſt miſcarry, if Nature has not furniſhed a ſufficient ſupply of materials: *ſtagnant pools* are always diſguſting: *ſtews*, indeed, may often be neceſſary; but, like the kitchen-garden, they ought not to be *ſeen*.

* The ſeat of Lord Temple, near Buckingham.

WOOD.

OVER this element of the rural art the power of the artiſt is abſolute; he can increaſe or diminiſh at pleaſure: if the place be over-wooded, he can lighten it with lawn, or with water: if too naked, he can ſupply the deficiency by PLANTING.

In forming ORNAMENTAL PLANTATIONS, two things are to be conſidered, the *ſpecies of plantation*, and the *ſpecies of tree*.

The different ſpecies of plantation are the *Wood*, the *Grove*, the *Coppice* or *Thicket*, the *Shrubbery-Quarter*, the *Border*, the *Clump*, the *Group*, and the *Single-Tree*.

Woods, Groves, and extenſive Thickets, are more particularly adapted to the ſides of hills and elevated ſituations: the larger Clumps, Groups and Single-Trees, to the lower grounds. A naked hill gives an idea of bleakneſs; as a valley filled with wood does that of dankneſs. The Shrubbery depends more upon artificial accompaniments than natural ſituation.

Much depends upon the diſpoſition of the ſeveral diſtinct woodineſſes (whether accidental or deſigned) with reſpect to each other; and much alſo upon the reſpective outlines, particularly thoſe of the larger kind. The Atmoſphere and the Earth are equally bountiful in affording the rural artiſt fit ſubjects for ſtudy. The margins of ſeas and lakes give us, in their bays and promontories, an ample

choice

choice of outline; whilſt the blue expanſe ſcattered with ſummer's clouds, diſcovers infinite variety both of figure and diſpoſition.

In the choice of trees four things are obſervable: the *height*, the *form*, the *colour*, and the *uſe*. This is more eſſential to a good choice than may appear at firſt ſight: nothing heightens the idea of ornament, eſpecially in the eye of the owner, more than utility; nor on the contrary does any thing flatten it, or throw a damp upon the gratification, more than the worthleſſneſs of the object before us. Immediately under the eye, the gaudy Shrub, and the ornamental though uſeleſs Exotic, may be admitted; but for more diſtant objects, and in leſs embelliſhed ſituations, the Timber-tree ought to prevail. We ſhould endeavour to make ſuch a choice as will gratify the preſent age and benefit the future.

In mixing trees there is, in reſpect of *height*, a general rule: the talleſt ſhould be made to occupy the central parts, deſcending gradually to the margin: but with reſpect to *colour* all precepts would be vague; the tints ought to be as wild and various as the evening ſky tinged by the ſetting ſun.

NATURAL ACCOMPANIMENTS.

THE moſt judicious admixture of wood and lawn appears flat and unmeaning, unleſs it be enlivened

livened by animated nature. What ſprightlineſs and elegance are added to the plain, in the playful attitudes and racings of the horſe;—and how much additional grandeur the vale receives in the ſcattered herd!—How ſtrikingly beautiful the boſom of a hill enlivened by the paſturing flock; and how peculiarly delightful the ſequeſtered lawn, while the hare is preſent! Even the ſquirrel gives a chearfulneſs to the grove; whilſt the plumy tribes diſperſe an agreeable animation through the whole ſcene.

FACTITIOUS ACCOMPANIMENTS.

UNDER this head we arrange *Fences*, *Walks*, *Roads*, *Bridges*, *Seats*, and *Buildings*.

The FENCE, where the place is large, becomes neceſſary; yet the eye diſlikes conſtraint. Our ideas of liberty carry us beyond our own ſpecies: the imagination feels a diſlike in ſeeing even the brute creation in a ſtate of confinement. The birds wafting themſelves from wood to grove are objects of delight; and the hare appears to enjoy a degree of happineſs unknown to the barriered flock. Beſides, a tall fence frequently hides from the ſight objects the moſt pleaſing; not only the flocks and herds themſelves, but the ſurface they graze upon. Theſe conſiderations have brought the *unſeen fence* into general uſe.

This ſpecies of barrier it muſt be allowed incurs a degree of deception, which can ſcarcely be warranted upon any other occaſion. In this inſtance, however, it is a ſpecies of fraud which we obſerve

in nature's practice: how often have we ſeen two diſtinct herds feeding, to appearance, in the ſame extended meadow; until coming abruptly upon a deep-ſunk rivulet, or an unfordable river, we diſcover the deception.

Beſides the *ſunk* fence, another ſort of unſeen barrier may be made, though by no means equal to *that*; eſpecially if near the eye. This is conſtructed of paling, painted of the *inviſible green*. If the colour of the back-ground were permanent, and that of the paint made exactly to correſpond with it, the deception would, at a diſtance, be complete; but back-grounds, in general, changing with the ſeaſon, this kind of fence is the leſs eligible.

Clumps and patches of woodineſs ſcattered promiſcuouſly on either ſide of an unſeen winding fence, aſſiſt very much in doing away the idea of conſtraint. For by this means

The wand'ring flocks that brouſe between the ſhades,
Seem oft to paſs their bounds, the dubious eye
Decides not if they crop the mead or lawn.

MASON.

The WALK, in extenſive grounds, is as neceſſary as the Fence. The beauties of the place are diſcloſed that they may be ſeen; and it is the office of the walk to lead the eye from view to view; in order that, whilſt the tone of health is preſerved by the favourite exerciſe of nature, the mind may be thrown into uniſon by the harmony of the ſurrounding objects.

The

The direction of the walk muſt be guided by the points of view to which it leads, and the nature of the ground it paſſes over: it ought to be made ſubſervient to the natural impediments — the Ground, Wood, and Water — which fall in its way, without appearing to have any direction of its own. It can ſeldom run, with propriety, any diſtance in a ſtrait line; a thing which rarely occurs in a *natural walk*. The paths of the Negroes, and the Indians, are always crooked; and thoſe of the brute creation are very ſimilar. Mr. Maſon's deſcription of this *Path of Nature* is happily conceived.

> The peaſant driving through each ſhadowy lane
> His team, that bends beneath th' incumbent weight
> Of laughing CERES, marks it with his wheel;
> At night and morn, the milk-maid's careleſs ſtep
> Has, thro' yon paſture green, from ſtile to ſtile
> Impreſt a kindred curve; the ſcudding hare
> Draws to her dew-ſprent ſeat, o'er thymy heaths,
> A path as gently waving. ——— *Eng. Gard.* v. 60.

THE ROAD may be a thing of neceſſity, as an *approach* to the manſion, or a matter of amuſement only, as a *drive* or a *ride*, from which the grounds, and the ſurrounding country, may be ſeen to advantage. It ſhould be the ſtudy of the artiſt to make the ſame road anſwer, as far as may be, the two-fold purpoſe.

The Road and the Walk are ſubject to the ſame rule of *Nature* and *Uſe*. The direction ought to be natural and eaſy, and adapted to the purpoſe intended. A Road of neceſſity ought to be ſtraighter

than one of mere conveniency: in this, recreation is the predominant idea; in that, utility. But, even in this, the direct line may be diſpenſed with. The natural roads upon heaths and open downs, and the graſſy glades and green roads acroſs foreſts and extenſive waſtes, are proper ſubjects to be ſtudied.

THE BRIDGE ſhould never be ſeen where it is not wanted: a uſeleſs bridge is a deception; deceptions are frauds; and fraud is always hateful; unleſs when practiſed to avert ſome greater evil. A bridge without water is an abſurdity; and half an one ſtuck up as an eye-trap is a paltry trick, which, though it may ſtrike the ſtranger, cannot fail of diſguſting when the fraud is found out.

In low ſituations, and wherever water abounds, bridges become *uſeful*, and are therefore *pleaſing objects*: they are looked for, and ought to appear; not as objects of ornament only, but likewiſe as matters of utility. The walk or the road, therefore, ought to be directed in ſuch a manner as to croſs the water at the point in which the bridge will appear to the greateſt advantage.

In the conſtruction of bridges, alſo, regard muſt be had to ornament and utility. A bridge is an artificial production, and as ſuch it ought to appear. It ranks among the nobleſt of human inventions: the ſhip and the fortreſs alone excel it. Simplicity and firmneſs are the leading principles in its conſtruction. Mr. Wheatley's obſervation is juſt when he ſays, "The ſingle wooden arch, now much in faſhion, ſeems to me generally miſapplied. Elevated without

without occaſion ſo much above, it is totally detached from the river; it is often ſeen ſtraddling in the air, without a glimpſe of water to account for it; and the oſtentation of it as an ornamental object, diverts all that train of ideas, which its uſe, as a communication, might ſuggeſt." (*Obſ. on Mod. Gard.* 73.) But we beg leave to differ from this ingenious Writer when he tells us, that it is "ſpoiled, if adorned; it is disfigured, if only painted of any other than a duſky colour." In a ruſtic ſcene, where Nature wears her own coarſe garb, "the vulgar foot-bridge of planks only, guarded on one hand by a common rail, and ſupported by a few ordinary piles," may be in character; but amidſt a diſplay of ornamented Nature, a contrivance of that kind would appear mean and paltry; and would be an affectation of ſimplicity, rather than the lovely attribute itſelf. In cultivated ſcenes, the bridge ought to receive the ornaments which the laws of architectural taſte allow; and the more poliſhed the ſituation, the higher ſhould be the ſtyle and finiſhings.

SEATS have a two-fold uſe; they are uſeful as places of reſt and converſation, and as guides to the *points of view*, in which the beauties of the ſurrounding ſcene are diſcloſed. Every point of view ſhould be marked with a ſeat, and, ſpeaking generally, no ſeat ought to appear but in ſome favourable point of view. This rule may not be invariable, but it ought ſeldom to be deviated from.

In the ruder ſcenes of neglected Nature, the ſimple trunk, rough from the woodman's hands, and the butts or ſtools of rooted trees, without any other marks of tools upon them than thoſe of the ſaw which ſevered them from their ſtems, are ſeats in character; and in romantic or recluſe ſituations, the cave or the grotto are admiſſible. But wherever human deſign has been executed upon the natural objects of the place, the ſeat and every other artificial accompaniment ought to be in uniſon; and, whether the bench or the alcove be choſen, it ought to be formed and finiſhed in ſuch a manner as to unite with the wood, the lawn, and the walk, which lie round it.

The colour of ſeats ſhould likewiſe be ſuited to ſituations: where uncultivated Nature prevails, the natural brown of the wood itſelf ought not to be altered: but where the rural art preſides, white, or ſtone-colour, has a much better effect.

Buildings may be admitted into ornamented Nature; provided they be at once uſeful and ornamental. Mere ornament without uſe, and mere uſe without ornament, are equally inadmiſſible. Nor ſhould their uſes be diſguiſed; a barn dreſſed up in the habit of a country church, or a farm-houſe figuring away in the fierceneſs of a caſtle, are ridiculous deceptions. A landſcape daubed upon a board, and a wooden ſteeple ſtuck up in a wood, are beneath cenſure.

There is another ſpecies of uſeleſs ornament ſtill more offenſive, becauſe more coſtly, than thoſe comparatively

paratively innocent eye-traps; we mean Temples *. Whether they be dedicated to Bacchus, Venus, Priapus, or any other demon of debauchery, they are, in this age, enlightened with regard to theological and ſcientific knowledge, equally abſurd.

We are far, however, from wiſhing to exclude architecture from ornamented Nature. We wiſh to ſee it exerciſed in all its beauty and ſublimity upon a chapel †, a mauſoleum ‡, a monument ||,— ſcattered judiciouſly among the natural ornaments: not too open or conſpicuous, to give them the air of principals; nor too recluſe, to loſe their full effect as ſubordinate parts of the one great whole.

* Notwithſtanding thouſands, or tens of thouſands, have, in one inſtance, been ſacrificed to Vanity and falſe Wit (O! Temple! "how delightful are thy Temples!"), we flatter ourſelves that as few men's names can apologize for committing ſo great an act of folly, the example will not be copied.

† The late Sir William Harbord, whoſe taſte and judgement, upon every occaſion, diſcovered a goodneſs of heart and a greatneſs of character, has given us a model of this kind, at Gunton, in Norfolk. The pariſh-church ſtanding in his park, and being an old unſightly building, he had it taken down, and a *beautiful temple*, under the direction of the Adams', erected upon its ſite.

‡ The mauſoleum at Caſtle-Howard, in Yorkſhire, the ſeat of the Earl of Carliſle, is a noble building.

|| The *temple* of Concord and Victory at Stowe, erected to the memory of the great Lord Chatham and *his* glorious war, is a beautiful *monumental* building, ſuited to the greatneſs of the occaſion.

In ſcenes leſs ornamented, buildings of an oeconomical nature may appear with good effect. Sir George Warren, at his ſeat near Fetcham in Surrey, has turned a *temple* into a wind-mill with great ſucceſs. What was before a uſeleſs, *lifeleſs* fabrick, now ſtands an emblem of activity and induſtry. Under the heads of large artificial lakes, water-mills may generally be erected, and with good effect. A mill is not only a ſtriking inſtance of the power of the human invention, but is frequently a great relief to the poor in its neighbourhood. Subſtantial farm-houſes, and neat comfortable cottages, ſcattered at a proper diſtance, are always pleaſing objects. The banquetting-houſe and the porter's lodge, being more ſuſceptible of ornament, may be permitted nearer the eye.

GENERAL APPLICATION.

HAVING thus enumerated the elements, and ſet forth the leading principles, we now proceed to the execution.

We beg leave to preface this part of our performance with apprizing our Readers, that all that can be written upon this delightful art muſt be more or leſs general. — All that *ſcience* can do is to give *a comprehenſive view of the ſubject*; and all that

that *precept* ſhould attempt, is to lay down *general rules* of practice. The nature of the place itſelf--and the purpoſe for which it is about to be improved, muſt ever determine the particular application. It follows, that a gentleman who, from long reſidence, is fully acquainted with the former, and whoſe will is a rule to the latter, is the propereſt perſon to improve his own place; — provided he be intimately acquainted with the *Art* — as well as with the *place* and the *purpoſe:* the three are equally and eſſentially neceſſary to be underſtood. It would be as great an impropriety in a gentleman to ſet about the execution of a work of this nature upon a large ſcale, before he had acquired a comprehenſive knowledge of the ſubject, ſtudied its leading principle from Nature, made ample obſervation upon places already ornamented, and had eſtabliſhed his theory by ſome actual practice, at leaſt upon a ſmall ſcale;—as it would be in a profeſſional artiſt to hazard his own reputation, and riſque the property of his employer, before he had ſtudied maturely the nature of the place, and been made fully ſenſible of the intentions of its owner.

The nature and ſtyle of improvement, — *the purpoſe*, — depends entirely upon the intention and taſte of the proprietor, and is conſequently as various as the nature of places themſelves: nevertheleſs, improvements in general may be claſſed under the following heads:

The

The Hunting-Box, The Villa, and
The Ornamented Cottage, The Principal Reſidence.

But, before we enter upon the detail, it will be proper to make ſome general obſervations.

It is unneceſſary to repeat, that wherever Nature or accident has already adapted the place to the intended purpoſe, the aſſiſtance of Art is precluded: but wherever Nature is improveable, Art has an undoubted right to ſtep in, and make the requiſite improvement. The diamond, in its natural ſtate, is highly improveable by art.

In the lower claſſes of rural improvements, Art ſhould be ſeen as little as may be; and in the more negligent ſcenes of Nature, every thing ought to appear as if it had been done by the general laws of Nature, or had grown out of a ſeries of fortuitous circumſtances. But, in the higher departments, Art cannot be hid; and the *appearance* of deſign ought not to be excluded. A human production cannot be made perfectly natural; and, held out as ſuch, it becomes an impoſition. Our art lies in endeavouring to adapt the productions of Nature to human taſte and perceptions; and, if much art be uſed, do not *attempt* to hide it. Who conſiders an accompliſhed well-dreſſed woman as in a ſtate of Nature? and who, ſeeing a beautiful ground adorned with wood and lawn, with water, bridges, and buildings, believes it to be a natural production? Art

ſeldom

ſeldom fails to pleaſe when executed in a maſterly manner: nay, it is frequently the deſign and execution, more than the production itſelf, that ſtrikes us. It is the *artifice*, not the *deſign*, which ought to be avoided. It is the *labour*, and not the *art*, which ought to be concealed. A well-written poem would be read with leſs pleaſure, if we *knew* the painful exertions it gave riſe to in the compoſition; and the rural artiſt ought, upon every occaſion, to endeavour to avoid labour; or, if indiſpenſibly neceſſary, to conceal it. No trace ſhould be left to lead back the mind to the *expenſive toil*. A mound raiſed, a mountain levelled, or a uſeleſs temple built, convey to the mind feelings equally diſguſting.

But though the aids of Art are as eſſential to gardening, as education is to manners; yet Art may do too much: ſhe ought to be conſidered as the hand-maid, not as the miſtreſs, of Nature: and whether ſhe be employed in carving a tree into the figure of an animal, or in ſhaping a view into the form of a *picture*, ſhe is equally culpable. The nature of the place is ſacred. Should this tend to *landſcape*, from ſome principal point of view, aſſiſt Nature, and perfect it; provided this can be done without injuring the views from other points. But do not diſfigure the natural features of the place:—do not ſacrifice its native beauties, to the arbitrary laws of landſcape painting.

Great Nature ſcorns controul; ſhe will not bear
One beauty foreign to the ſpot or ſoil
She gives thee to adorn: 'Tis thine alone
To mend, not change her features. MASON.

In a picture bounded by its frame, a perfect landſcape is looked for: it is of itſelf a *whole*, and *the frame muſt be filled*. But it is not ſo in ornamented Nature: for, if a ſide-ſcreen be wanting, the eye is not offended with the frame, or the wainſcot; but has always ſome natural and pleaſing object to receive it. Suppoſe a room to be hung with one continued rural repreſentation, — would *pretty pictures* be expected? would correct landſcapes be looked for? Nature ſcarcely knows the thing mankind call a *landſcape*. The landſcape-painter ſeldom, if ever, finds it perfected to his hands; — ſome addition or alteration is almoſt always wanted. Every man who has made his obſervations upon natural ſcenery, knows that the Miſletoe of the Oak occurs almoſt as often as a perfect natural landſcape; and to attempt to make up artificial landſcape, upon every occaſion, is unnatural and abſurd.

It is far from our intention to intimate any thing the leaſt diſreſpectful to *landſcape painting*: let the ingenious artiſt cull from Nature her choiceſt beauties, and let him aſſociate them in the manner beſt ſuited to his own ſingle and permanent point of view: but do not let us carry his production back again to Nature, and contract her unbounded beauties within the limits of a picture-frame. If, indeed,

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the eye were fixed in one point, the trees could be raiſed to their full height at command, and the ſun be made to ſtand ſtill,—the rural artiſt might work by the rules of *light and ſhade*, and compoſe his landſcape by the painter's law. But, whilſt the ſun continues to pour forth its light impartially, and the trees to riſe with ſlow progreſſion, it would be ridiculous to attempt it. Let him rather ſeek out, imitate, and aſſociate, ſuch STRIKING PASSAGES IN NATURE as are immediately applicable to the place to be improved, without regard to rules of landſcape, merely human;—and let him,

——————— in this and all
Be various, wild, and free, as Nature's ſelf." MASON.

Inſtead of ſacrificing the natural beauties of the place to one formal landſcape, let every ſtep diſcloſe freſh charms unſought-for. How ſtrikingly beautiful the changes formed by the iſlands, and their reſpective mountains, in ſailing through the Weſt-Indies! The eye does not catch the ſame view twice: the ſcene is ever changing,—ever beautiful.

We ſhould not have offered our ſentiments ſo freely upon landſcape, had not a French writer of ſome eminence *, in a work lately publiſhed, laid

* The Marquis D'Ermenonville, friend of the celebrated Rouſſeau, who died at his houſe, and whoſe remains were depoſited in his grounds, at Ermenonville.

it

it down as an invariable rule, that all ornamental grounds ſhould have a complete landſcape, to be ſeen from ſome part of the houſe; and to be made from a perſpective drawing, previouſly taken from the window of the ſaloon, or the top of the manſion. The work, in other reſpects, has, nevertheleſs, great merit, and is in fact an ingenious *Eſſay on Engliſh Gardening*. The Frenchman's vanity, however, will not ſuffer him to make this acknowledgement: no, it is neither Antients, nor Moderns, nor Engliſh, nor Chineſe; and there is ſome reaſon to ſuſpect, that the Marquis holds out landſcape for no other purpoſe, than to endeavour to give his work the air of originality; for, in other reſpects, it contains, in effect, what Wheatley and Maſon, Kent and Brown, have previouſly taught and practiſed.

Notwithſtanding, however, the nature of the place ought not to be ſacrificed to the manſion; — the houſe muſt ever be allowed to be a principal in the compoſition. It ought to be conſidered as the center of the ſyſtem; and the rays of art, like thoſe of the ſun, ſhould grow fainter as they recede from the center. The houſe itſelf being entirely a work of art, its immediate environs ſhould be highly finiſhed; but as the diſtance increaſes, the appearance of deſign ſhould gradually diminiſh, until Nature and fortuitouſneſs have full poſſeſſion of the ſcene.

In general, the approach ſhould be to the back-front, which, in ſuitable ſituations, ought to lie

open

open to the paſture-grounds. On the ſides more highly ornamented, a well-kept gravel-walk may embrace the walls; to this the ſhaven lawn and ſhrubbery ſucceed; next, the grounds cloſely paſtured; and, laſtly, the ſurrounding country, which ought not to be conſidered as out of the artiſt's reach: for his art conſiſts not more in decorating particular ſpots, than in endeavouring to render the whole face of Nature delightful.

Another reaſon for this mode of arrangement is, objects immediately under the eye are ſeen more diſtinctly than thoſe at a diſtance, and ought to be ſuch as are pleaſing in the detail. The beauties of a flower can be diſcerned on a near view only; whilſt, at a diſtance, a roughet of coppice-wood, and the moſt elegant arrangement of flowering-ſhrubs, have the ſame effect. The moſt rational entertainment the human mind is capable of receiving, is that of obſerving the operations of Nature. The foliation of a leaf, the blowing of flowers, and the maturation of fruit, are among the moſt delightful ſubjects that a contemplative mind can be employed in. Theſe proceſſes of Nature are ſlow, and except the object fall ſpontaneouſly under the eye of the obſerver, the inconveniencies of viſiting it in a remote part, ſo far interfere with the more important employments of life, as to blunt, if not deſtroy, the enjoyment. This is a ſtrong argument in favour of ſhrubs and flowers being planted under or near our windows, eſpecially thoſe from

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whence they may be viewed during the hours of leiſure and tranquillity.

Further, the vegetable creation being ſubject to the animal, the ſhrub may be cropt, or the flower trodden down, in its day of beauty. If, therefore, we wiſh to converſe with Nature in private, intruders muſt be kept off, — the ſhrubbery be ſevered from the ground; — yet not in ſuch a manner as to drive away the paſturing ſtock from our ſight. For this reaſon, the ſhaven lawn ought not to be too extenſive, and the fence which incloſes it ſhould be ſuch as will not interrupt the view: But whether it be *ſeen* or *unſeen*, *ſuſpected* or *unſuſpected*, is a matter of no great import: its utility in protecting the ſhrubs and flowers,—in keeping the horns of the cattle from the window, and the feet of the ſheep from the gravel and broken ground,—in preſerving that neatneſs on the outſide, which ought to correſpond with the finiſhings and furniture within,— render it of ſufficient importance to become even a part of the ornament.

Before any ſtep can be taken towards the execution of the deſign, be it large or ſmall, a map or plan of the place, exactly as it lies in its unimproved ſtate, ſhould be made; with a correſponding ſketch, to mark the intended improvements upon. Not a hovel nor a twig ſhould be touched, until the artiſt has ſtudied maturely the natural abilities of the place, and has decidedly fixed in his mind, and finally ſettled on his plan, the propoſed alterations:

ations: and even then, let him " dare with caution."

There is a ſtriking ſimilarity between a neglected ſcene in Nature, and a neglected cottage-beauty; and the mode of improvement is, in either inſtance, ſimilar. If the face unwaſhed, and uncombed hair, be conſidered as ornamental,—Art is not wanted. If ruſtic bloom and native ſimplicity be deemed more deſirable,—waſh the face, and comb the hair in flowing ringlets, and ſuch ornament will be had in its higheſt perfection. If that elegance of carriage, and gracefulneſs of deportment, which flow from education and a refined underſtanding, be thought requiſite, Art may be employed in giving this grace and elegance; for thus far ſhe may go with propriety. But, if ſhe attempt to go farther, if ſhe preſume to *cut and carve*, or diſguiſe the native beautifulneſs of features with *paint and patches*, or to hide the lovelineſs of form with *fantaſtic or formal dreſſes*, — ſhe does too much.

It would be needleſs to add, that Art may be employed in concealing, or in doing away the deformities of Nature. But, even in this, ſhe ought to be cautiouſly circumſpect: for, throughout, there is more danger of doing too much than too little; and nothing ſhould ever be attempted which cannot be performed in a maſterly manner.

HUNTING-BOX.

HERE Art has little to do. Hunting may be called the amuſement of Nature; and the place appropriated to it ought to be no farther altered from its natural ſtate than decency and conveniency require:---With men who live in the preſent age of refinement, "a want of decency is a want of ſenſe."

The ſtyle throughout ſhould be *maſculine*. If ſhrubs be required, they ſhould be of the hardier ſorts; the Box, the Holly, the Lauruſtinus. The trees ſhould be the Oak and the Beech, which give in Autumn an agreeable variety of foliage, and anticipate, as it were, the ſeaſon of diverſion. A ſuite of paddocks ſhould be ſeen from the houſe; and if a view of diſtant covers can be caught, the background will be compleat. The ſtable, the kennel, and the leaping-bar, are the factitious accompaniments; in the conſtruction of which ſimplicity, ſubſtantialneſs, and conveniency, ſhould prevail.

ORNAMENTED COTTAGE.

NEATNESS and ſimplicity ought to mark the ſtyle of this rational retreat. Oſtentation and ſhow ſhould be cautiouſly avoided; even elegance ſhould not be *attempted*; though it may not be *hid*, if it offer itſelf ſpontaneouſly.

Nothing,

Nothing, however, ſhould appear vulgar, nor ſhould ſimplicity be pared down to baldneſs; every thing whimſical or expenſive ought to be ſtudiouſly avoided;—chaſteneſs and frugality ſhould appear in every part.

Near the houſe a *ſtudied neatneſs* may take place; but, at a diſtance, *negligence* ſhould rather be the characteriſtic.

If a taſte for botany lead to a collection of native ſhrubs and flowers, a ſhrubbery will be requiſite; but, in this, every thing ſhould be native. A gaudy exotic ought not to be admitted; nor ſhould the lawn be kept cloſe ſhaven; its flowers ſhould be permitted to blow; and the herbage, when mown, ought to be carried off, and applied to ſome uſeful purpoſe.

In the artificial accompaniments, ornament muſt be ſubordinate; utility muſt preſide. The buildings, if any appear, ſhould be thoſe in actual uſe in rural economics. If the hovel be wanted, let it appear; and, as a ſide-ſcreen, the barn and rick-yard are admiſſible; whilſt the dove-houſe and poultry-yard may enter more freely into the compoſition.

In fine, the ORNAMENTED COTTAGE ought to exhibit cultivated Nature in the firſt ſtage of refinement. It ranks next above the farm-houſe. The plain garb of ruſticity may be ſet off to advantage; but the ſtudied dreſs of the artiſt ought not to appear. That becoming neatneſs, and thoſe domeſtic conveniencies, which render the rural life agreeable to a cultivated mind, are all that ſhould be aimed at.

THE VILLA.

HERE, a ſtyle very different from the preceding ought to prevail: It ought to be *elegant*, *rich*, or *grand*, according to the ſtyle of the houſe itſelf, and the ſtate of the ſurrounding country; the principal buſineſs of the artiſt being to connect theſe two in ſuch a manner, that the one ſhall not appear naked or flareing, nor the other deſolate and inhoſpitable.

If the houſe be ſtately, and the adjacent country rich and highly cultivated, a ſhrubbery may intervene, in which Art may ſhew her utmoſt ſkill. Here, the artiſt may even be permitted to *play at landſcape:* for a place of this kind being ſuppoſed to be ſmall, the purpoſe principally ornamental, and the point of view probably confined ſimply to the houſe, ſide-ſcreens may be formed, and a fore-ground laid out ſuitable to the beſt diſtance that can be caught.

If buildings or other artificial ornaments abound in the offscape, ſo as to mark it ſtrongly, they ought alſo to appear more or leſs in the fore-ground: if the diſtance abound with wood, the fore-ground ſhould be thickened, leſt baldneſs ſhould offend; if open and naked, elegance rather than richneſs ought to be ſtudied, leſt heavineſs ſhould appear.

It is far from being any part of our plan to cavil unneceſſarily at artiſts, whether living or dead; we cannot, however, refrain from expreſſing a concern for the almoſt total neglect of the principles here

here laid down, in the prevailing practice of a late celebrated artiſt, in ornamenting the vicinages of villas. We mention it the rather, as Mr. Brown ſeems to have *ſet the faſhion*, and we are ſorry to find it copied by the inferior artiſts of the day. Without any regard to uniting the houſe with the adjacent country, and, indeed, ſeemingly without any regard whatever to the offscape, one invariable plan of embelliſhment prevails; namely, that of ſtripping the fore-ground entirely naked, or nearly ſo, and ſurrounding it with a wavy border of ſhrubs and a gravel walk; leaving the area, whether large or ſmall, one naked ſheet of greenſward.

In ſmall confined ſpots, this plan may be eligible. We diſlike thoſe bolſtered flower-beds which abound in the ſuburbs of the metropolis, where the broken-ground ſometimes exceeds the lawn: nevertheleſs, to our apprehenſion, a ſimple border round a large unbroken lawn only ſerves to ſhew what more is wanted. Simplicity in general is pleaſing; but even ſimplicity may be carried to an extreme, ſo as to convey no other idea than that of poverty and baldneſs. Beſides, how often do we ſee in natural ſcenery, the holly and the foxglove flouriſhing at the foot of an oak, and the primroſe and the campion adding charms to the hawthorn ſcattered over the paſtured lawn? And we conceive that ſingle trees footed with evergreens and native flowers, and clumps as well as borders of ſhrubs, are admiſſible in *ornamental* as well as in *natural* ſcenery.

The ſpecies of ſhrub will vary with the purpoſe, If the principal intention be a winter retreat, evergreens and the early-blowing ſhrubs ſhould predominate; but in a place to be frequented in ſummer and autumn, the deciduous tribes ought chiefly to be planted.

PRINCIPAL RESIDENCE.

HERE the whole art centers. The artiſt has here full ſcope for a diſplay of taſte and genius. He has an extent of country under his eye, and will endeavour to make the moſt of what nature and accident have ſpread before him.

Round a Principal Reſidence, a gentleman may be ſuppoſed to have ſome conſiderable eſtate, and it is not a ſhrubbery and a ground only, which fall under the conſideration of the artiſt: he ought to endeavour to diſcloſe to the view, either from the houſe or ſome other point, as much as he conveniently can of the adjacent eſtate. The love of poſſeſſion is deeply planted in every man's breaſt; and places ſhould bow to the gratification of their owners. To curtail the view by an artificial ſide-ſcreen, or any other unnatural machinery, ſo as to deprive a man of the ſatisfaction of over-looking his own eſtate, is an abſurdity which no artiſt ought to be permitted to be guilty of. It is very different, however, where the property of another intrudes

trudes upon the eye: Here the view may, with ſome colour of propriety, be bounded by a woody ſcreen.

After what has been ſaid under the head GENERAL APPLICATION, little remains to be added here. Indeed, it would be in vain to attempt to lay down particular rules: different places are marked by ſets of features as different from each other as are thoſe in men's faces. Much muſt be left to the ſkill and taſte of the artiſt; and let thoſe be what they may, nothing but mature ſtudy of the natural abilities of the particular place to be improved, can render him equal to the execution, ſo as to make the moſt of the materials that are placed before him.

Some few general rules may nevertheleſs be laid down. The approach ought to be conducted in ſuch a manner, that the ſtriking features of the place ſhall burſt upon the view at once: no trick however ſhould be made uſe of: all ſhould appear to fall in naturally. In leading towards the houſe its direction ſhould not be fully in front, nor exactly at an angle, but ſhould paſs obliquely upon the houſe and its accompaniments; ſo that their poſition with reſpect to each other, as well as the perſpective appearance of the houſe itſelf, may vary at every ſtep: and, having ſhewn the front and the principal wing, or other accompaniment, to advantage, the approach ſhould wind to the back-front, which,

as has been already obſerved, ought to lie open to the park or paſtured grounds.

The improvements and the rooms from which they are to be ſeen ſhould be in *uniſon*. Thus, the view from the drawing-room ſhould be highly embelliſhed, to correſpond with the beauty and elegance within: every thing here ſhould be *feminine*—elegant—beautiful—ſuch as attunes the mind to politeneſs and lively converſation. The breakfaſting-room ſhould have more maſculine objects in view: wood, water, and an extended country for the eye to roam over; ſuch as allures us imperceptibly to the ride or the chace. The eating and banquetting rooms need no *exterior* allurements.

There is a harmony in taſte as in muſic: variety, and even wildneſs upon ſome occaſions, may be admitted; but diſcord cannot be allowed. If, therefore, a place be ſo circumſtanced as to conſiſt of properties totally irreconcileable, the parts ought, if poſſible, to be ſeparated in ſuch a manner, that, like the air and the recitative, the adagio and the allegro, in muſic, they may ſet off each other's charms by the contraſt. We will endeavour to illuſtrate our meaning, and cloſe our preſent performance, with a deſcription and propoſed improvement of *Perſfield*, the ſeat of Mr. MORRIS, near Chepſtow in Monmouthſhire; a place upon which Nature has been peculiarly laviſh of her favours; and which has been ſpoken of by Mr. WHEATLEY, Mr. GILPIN,

GILPIN, and other writers in the moſt flattering terms.

Persfield is ſituated upon the banks of the river Wye, which divides Glouceſterſhire and Monmouthſhire, and which was formerly the boundary between England and Wales. The general tendency of the river is from north to ſouth; but about Persfield it deſcribes by its winding courſe the letter S, ſomewhat compreſſed, ſo as to reduce it in length and increaſe its width. The grounds of Persfield are lifted high above the bed of the river, ſhelving, and form the brink of a lofty and ſteep precipice, towards the ſouth-weſt.

The lower limb of the letter is filled with *Perſe-wood*, which makes a part of Perſefield; but is at preſent an impenetrable thicket of coppice-wood. This dips to the ſouth-eaſt down to the water's edge; and, ſeen from the top of the oppoſite rock, has a good effect.

The upper limb receives the farms of *Llancot:* rich and highly cultivated: broken into incloſures, and ſcattered with groups and ſingle trees: two well-looking farm-houſes in the center, and a neat white chapel on one ſide: altogether a lovely little paradiſaical ſpot. The lowlineſs of its ſituation ſtamps it with an air of meekneſs and humility; and the natural barriers which ſurround it adds that of peacefulneſs and ſecurity. Theſe pictureſque farms do not form a low flat bottom, ſubject to be overflowed by the river; but take the form of a gorget, riſing fulleſt in the middle, and

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falling on every ſide gently to the brink of the Wye; except on the eaſt-ſide, where the top of the gorget leans in an eaſy manner againſt a range of perpendicular rock; as if to ſhew its diſk with advantage to the walks of Perſefield.

This rock ſtretches acroſs what may be called the Iſthmus, leaving only a narrow paſs down into the fields of Llancot, and joins the principal range of rocks at the lower bend of the river.

To the north, at the head of the letter, ſtands an immenſe rock (or rather a pile of immenſe rocks heaped one above another) called Windcliff; the top of which is elevated as much above the grounds of Perſefield as thoſe are above the fields of Llancot.

Theſe ſeveral rocks, with the wooded precipices on the ſide of Perſefield, form a circular incloſure, about a mile in diameter, including Perſe-wood, Llancot, the Wye, and a ſmall meadow lying at the foot of Windcliff.

The grounds are divided into the upper and lower lawn *, by the approach to the houſe: a ſmall irregular building; ſtanding near the brink of the precipice; but facing down the lower lawn: a

* Mr. Wheatley ſays, the park contains about three hundred acres: but we think the two *lawns* cannot contain ſo much; and if the hanging-wood at the bottom of the lower lawn, with the face of the Precipice and Perſewood be added, they contain a great deal more.

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beautiful ground, falling "precipitately every way into a valley which ſhelves down in the middle;" and is ſcattered with groups and ſingle trees in an excellent ſtyle.

The view from the houſe is ſoft, rich, and beautifully pictureſque:—the lawn and woods of Perſefield and the oppoſite banks of the river:—the Wye, near its mouth, winding thro' "meadows green as emerald," in a manner peculiarly graceful:—the Severn, here very broad, backed by the wooded and highly cultivated hills of Glouceſterſhire, Wiltſhire, and Somerſetſhire. Not one *rock* enters into the compoſition:—The whole view conſiſts of an elegant arrangement of lawn, wood, and water.

The upper lawn is a leſs beautiful ground, and the view from it, though it command the "cultivated hills and rich vallies of Monmouthſhire," bounded by the Severn and backed by the Mendip-hills, is much inferior to that from the houſe.

To give variety to the views from Perſefield, to diſcloſe the native grandeur which ſurrounds it, and to ſet off its more ſtriking features to advantage, walks have been cut through the woods and on the face of the precipice which border the grounds to the ſouth and eaſt. The viewer enters theſe walks at the lower corner of the lower lawn.

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The firſt point of view is marked by an alcove, from which are ſeen the bridge and the town of Chepſtow, with its caſtle ſituated in a remarkable manner on the very brink of a perpendicular rock, waſhed by the Wye: and beyond theſe the Severn ſhews a ſmall portion of its ſilvery ſurface.

Proceeding a little farther along the walk, a view is caught which the painter might call a complete landſcape: The caſtle with the ſerpentine part of the Wye below Chepſtow, *intermixed* in a peculiar manner with the broad waters of the Severn, form the fore-ground; which is backed by diſtant hills: the rocks, crowned with wood, lying between the alcove and the caſtle, to the right; and Caſtle-hill farm, elevated upon the oppoſite banks of the river, to the left—form the two ſide-ſcreens. This point is not marked, and muſt frequently be loſt to the ſtranger.

The grotto, ſituated at the head of Perſe-wood, commands a near view of the oppoſite rocks:—magnificent beyond deſcription! The littleneſs of human art was never placed in a more humiliating point of view:—the caſtle of Chepſtow, a *noble fortreſs*, is, compared with theſe natural bulwarks, a mere *houſe of cards*.

Above the grotto, upon the iſthmus of the Perſe-field ſide, is a ſhrubbery:—ſtrangely miſplaced! an unpardonable intruſion upon the native grandeur of this ſcene. Mr. GILPIN's obſervations upon this—as upon every other occaſion---are very juſt.

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He ſays, " It is pity the ingenious Embelliſher of theſe ſcenes could not have been ſatisfied with the great beauties of nature which he commanded. The ſhrubberies he has introduced in this part of his improvements I fear will rather be eſteemed paltry."——" It is not the ſhrub which offends: it is the *formal introduction* of it. Wild underwood may be an appendage of the grandeſt ſcene: it is a beautiful appendage. A bed of violets or of lillies may enamel the ground with propriety at the foot of an oak; but if you introduce them artificially in a border, you introduce a trifling formality, and diſgrace the noble object you wiſh to adorn." (GILPIN *on the Wye*, p. 42.)

The walk now leaves the wood and opens upon the lower lawn, until coming near the houſe it enters the alarming precipice facing Llancot; winding along the face of it in a manner which does great honour to the artiſt. Sometimes the fragments of rock which fall in its way are avoided, at other times partially removed, ſo as to conduct the path along a ledge carved out of the rock; and in one inſtance, a huge fragment, of a ſomewhat conical ſhape and many yards high, is perforated; the path leading through its baſe. This is a thought which will hand down to future times the greatneſs of Mr. MORRIS's taſte: the deſign and the execution are equally great: not a mark of a tool to be ſeen; all appears perfectly natural. The arch-way is made winding, ſo that on the approach

proach it appears to be the mouth of a cave; and, on a nearer view, the idea is ſtrengthened by an allowable deception; a black dark hole on the ſide next the cliff, which, ſeen from the entrance before the perforation is diſcovered, appears to be the darkſome inlet into the body of the cave.

From this point, that vaſt incloſure of rocks and precipices which marks the peculiar magnificence of Perſefield, is ſeen to advantage. The area, containing in this point of view the fields of Llancot and the lower margin of Perſe-wood, is broken in a manner peculiarly pictureſque by the graceful winding of the Wye; here waſhing a low graſſy ſhore, and there ſweeping at the feet of the rocks,---which riſe in ſome places perpendicular from the water: but in general they have a wooded offsett at the baſe; above which they riſe to one, two, or perhaps three or four hundred feet high; expoſing one full face, ſilvered by age, and bearded with ivy, growing out of the wrinkle-like ſeams and fiſſures. If one might be allowed to compare the paltry performances of art with the magnificent works of nature, we ſhould ſay, that this incloſure reſembles a prodigious fortreſs which has lain long in ruins. It is in reality one of nature's ſtrong-holds; and as ſuch has probably been frequently made uſe of.—Acroſs the iſthmus on the Glouceſterſhire-ſide there are the remains of a deep intrenchment, called to this day the Bulwark; and tradition ſtill teems with the extraordinary warlike feats that have been performed among this romantic ſcenery.

From

From the perforated rock, the walk leads down to the cold-bath (a complete place), ſeated about the mid-way of the precipice, in this part leſs ſteep: and from the cold-bath a rough path winds down to the meadow, by the ſide of the Wye, from whence the precipice on the Perſefield-ſide is ſeen with every advantage: the giant fragments, hung with ſhrubs and ivy, riſe in a ghaſtly manner from amongſt the underwood, and ſhew themſelves in all their native ſavageneſs *.

From the cold-bath upward, a coach-road (very ſteep and difficult) leads to the top of the cliff, at the upper corner of the upper lawn. Near the top of the road is a point which commands one of the moſt pleaſing views of Perſefield: The Wye ſweeping through a graſſy vale which opens to the left:—Llancot backed by its rocks, with the Severn immediately behind them; and, ſeen in this point of view, ſeems to be divided from the Wye by only a ſharp ridge of rock, with a precipice on either ſide; and behind the Severn, the vale and wooded hills of Glouceſterſhire.

From this place a road leads to the top of Windcliff—aſtoniſhing ſight! The face of nature probably affords not a more magnificent ſcene! Llancot in all its grandeur; the grounds of Perſefield; the caſtle and town of Chepſtow; the graceful

* There is another way down into this meadow: a kind of winding ſtair-caſe, furrowed out of the face of the precipice, behind the houſe, and leading down into a walk made on the ſide of the river; but being at preſent out of repair, the deſcent this way is rendered very difficult, and ſomewhat dangerous.

wind-

windings of the Wye below, and its conflux with the Severn: to the left, the foreſt of Dean: to the right, the rich marſhes and pictureſque mountains of South Wales: a broad view of the Severn, opening its ſea-like mouth: the conflux of the Avon, with merchant ſhips at anchor in King-road, and veſſels of different deſcriptions under ſail: Auſt-Cliff, and the whole vale of Berkeley, backed by the wooded ſwells of Glouceſterſhire; the view terminating in clouds of diſtant hills, riſing one behind another, until the eye becomes unable to diſtinguiſh the earth's billowy ſurface from the clouds themſelves *.

The leading principle of the propoſed improvement would be to ſeparate the *ſublime* from the *beautiful*; ſo that in viewing the one, the eye might not ſo much as ſuſpect that the other was near.

Let the *hanging-walk* be conducted entirely along the precipices, or through the thickets, ſo as to diſcloſe the natural ſcenery, without once diſcovering the lawn or any other acquired ſoftneſs. Let the path be as rude as if trodden only by wild beaſts and ſavages, and the reſting-places, if any, as ruſtic as poſſible.

Eraſe entirely the preſent ſhrubbery, and lay out another as elegant as nature and art could render it before the houſe, ſwelling it out into the lawn,

* The waters of the Severn and Wye, being principals in theſe views, and being ſubject to the ebbings and flowings of the tide, which at the bridge of Chepſtow riſes to the almoſt incredable height of forty or fifty feet; it follows, that the time of ſpring-tide and high water is the propereſt time for going over Perſefield.

towards

towards the ſtables; between which and the kitchen-garden make a narrow winding entrance.

Convert the upper lawn into a deer-paddock, ſuffering it to run as wild, rough, and foreſt-like as total negligence would render it.

The viewer would then be thus conducted: He would enter the *hanging-walk* by a ſequeſtered path, at the lower corner of the lawn *, purſuing it thro' the wood to beneath the grotto; and round the head-land, or winding through Perſe-wood, to the perforated rock and the cold-bath, without once conceiving an idea (if poſſible) that art, or at leaſt that much art, had been made uſe of in diſcloſing the natural grandeur of the ſurrounding objects; which ought to appear as if they preſented themſelves to his view, or, at moſt, as if nothing was wanted but his own penetration and judgement to find them out. The walk ſhould therefore be conducted in ſuch a manner, that the breaks might be quite natural; yet the points of view obvious, or requiring nothing but a block or a ſtone to mark them. A ſtranger at leaſt wants no ſeat here; he is too eager, in the early part of his walk, to think of lounging upon a bench.

From the cold-bath he would aſcend the ſteep, near the top of which a commodious bench or benches might be placed: the fatigue of aſcending the hill would require a reſting-place; and there are

* A young plantation below the entrance into the lower lawn has been placed as it were for that purpoſe.

few points which afford a more pleaſing view than this; it is grand, without being too broad and glaring.

From theſe benches he would enter the *foreſt* part. Here the idea of Nature in her primitive ſtate would be ſtrengthened: the roughneſſes and deer to the right, and the rocks in all their native wildneſs to the left. Even Llancot might be ſhut out from the view by the natural ſhrubbery of the cliff. The Lover's-Leap, however (a tremendous peep), might remain; but no benches nor other work of art ſhould here be ſeen. A natural path, deviating near the brink of the precipice, would bring the viewer down to the lower corner of the park; where benches ſhould be placed in a happy point, ſo as to give a full view of the rocks and native wildneſſes, and, at the ſame time, hide the farm-houſes, fields, and other acquired beauties of Llancot.

Having ſatiated himſelf with this ſavage ſcene, he would be led, by a ſtill ruſtic path, through the labyrinth—when the ſhrubbery, the lawn, with all its appendages, the graceful Wye and the broad ſilver Severn, would break upon the eye with every advantage of ornamented nature: the tranſition could not fail to ſtrike.

From this ſoft ſcene he would be ſhewn to the top of Windcliff, where, in one vaſt view, he would unite the ſublime and beautiful of Perſefield.

F I N I S.

ENGLISH NAMES,

AND OTHER

NON-LINNEAN TERMS,

IN THE

ALPHABET OF PLANTS.

A.

ALMOND, — See *Amygdalus.*
Angelica Tree, — *Aralia.*
Andrachne, — — *Arbutus.*
Alder, — — *Betula.*
Allſpice Tree, — *Calycanthus.*
Alder, American, — *Clethra.*
Azarole, — — *Cratægus.*
Aria, — — *Cratægus.*
Aſh, — — *Fraxinus.*
Acacia, three-thorned, — *Gleditſia.*
Althea frutex, — *Hibiſcus.*
Amelanchier, — *Meſpilus.*
Aſpen, — — *Populus.*
Apricot, — — *Prunus.*
Apple, — — *Pyrus.*

Alder, berry-bearing, — *Rhamnus.*
Alaternus, — *Rhamnus.*
Aſh, poiſon, — *Rhus.*
Acacia, falſe, — *Robinia.*
Aſpalathus, — *Robinia.*
Aſh, mountain, — *Sorbus.*
Arbor vitæ, — *Thuya.*
Agnus caſtus, — — *Vitex.*
Azedarach, — — *Melia.*
Arbor Judæ, — *Cercis.*

B.

Bean Trefoil, ſtinking, — *Anagyris.*
Berbery, — — *Berberis.*
Birch, — — *Betula.*
Box, — — *Buxus.*
Button-Wood, — *Cephalanthus*
Bindwith, — *Clematis.*
Bladder Sena, — *Colutea.*
Bloody Twig, - - *Cornus.*
Byzantine Nut, — — *Corylus.*
Beech, — — *Fagus.*
Broom, — — *Geniſta.*
Buckthorn, Sea, — *Hippophae.*
Bay, — *Laurus.*
Benzoin Tree, - - - *Laurus.*
Benjamin Tree, - - *Laurus.*
Box-thorn, - - - *Lycium.*
Bead-Tree, - - - *Melia.*
Birdcherry, - - *Prunus.*

Bullace, - - - - *Prunus.*
Buckthorn, - - - *Rhamnus.*
Briar, ſweet, - - - *Roſa.*
Bramble, — — *Rubus.*
Broom, butcher's, —— *Ruſcus.*
Bindweed, — — *Smilax.*
Bittersſweet, — — *Solanum.*
Broom, — — *Spartium.*
Bladder Nut, —— *Staphylea.*
Briony, black, - — — *Tamus.*

C.

Cuſtard Apple, - - *Annona.*
Catalpa, - - *Bignonia.*
Climber, Virginia, - - *Bignonia.*
Climbers, Claſs of, - - *Clematis.*
Cherry, Cornelian, - - *Cornus.*
Colutea, jointed, - - *Coronilla.*
Cypreſs, - - *Cupreſſus.*
Cneorum, - - - *Daphne.*
Chamelæa, - - *Daphne.*
Cheſnut, - - - *Fagus.*
Chinquepin, - - - *Fagus.*
Cytiſus of Montpelier, - - *Geniſta.*
Creeper, Virginia, - - *Hedera.*
Cedars, Claſs of, - - *Juniperus.*
Savin, - - - *Juniperus.*
Crab, - - *Pyrus.*
Cork-Tree, - - *Quercus.*
Chriſti Thorn, - - *Rhamnus.*

Chamæ-ciſtus, - - *Rhododendron.*
Coccygria, - - - *Rhus.*
Caragana, - - - *Robinia.*
Cat-Whin, - - - *Roſa.*
Cæſius, - - - *Rubus.*
Caſine, - - - - *Viburnum.*
Caſſioberry, - - - *Viburnum.*
Chaſte Tree, - - - *Vitex.*
Cytiſus, prickly, - - *Spartium.*
Cherry, common, - - *Prunus.*
Cherry, dwarf, - - *Lonicera.*
Cucumber Tree, - - *Philadelphus.*
Cembro-Pine, - - *Pinus.*
Cedar of Lebanon, - - *Pinus.*

D.

Date Plum, - - *Dioſpyros.*
Diervilla, - - - *Lonicera.*
Dog's Bane, - - *Periploca.*
Dewberry, - - - *Rubus.*
Dogwoods, Claſs of, - - *Cornus.*

E.

Eſculus, - - *Æſculus.*
Evonymus, baſtard, - *Celaſtrus.*
Evonymus, Claſs of, - *Euonymus.*
Elder, - - - *Sambucus.*
Elm, - - *Ulmus.*
Eglantine, - - *Roſa.*
Elder, marſh, - - *Viburnum.*

Fringe

F.

Fringe Tree, - - *Chionanthus.*
Filbert, - - - *Corylus.*
Firs, - - - - *Pinus.*
Frangula, - - - *Rhamnus.*
Furze, - - - *Ulex.*
Flammula, - - - *Clematis.*

G.

Gale, ſpleenwort-leaved, - *Liquidamber.*
Gale, ſweet, - - - *Myrica.*
Gelder Roſe Spiræa, - - *Spiræa.*
Gelder Roſe Marſh Elder, *Viburnum.*
Grape, - - - *Vitis.*
Gorſe, - - *Ulex.*
Glaſswort, - *Salſola.*
Glaſtonbury Thorn, - *Cratægus.*

H.

Horſe Cheſnut, - - *Æſculus.*
Honeyſuckle, upright, - *Azalea.*
Hartwort, Ethiopian, - *Bupleurum.*
Hornbeam, - - *Carpinus.*
Hazel, - - *Corylus.*
Hawthorn, - - *Cratægus.*
Horſe-tail, - - *Ephedra.*
Hazel, dwarf, - - *Hamamelis.*
Holly, - - - *Ilex.*
Hickery Nut, - - - *Juglans.*

Honeyſuckles, Claſs of, - *Lonicera.*
Hypogloſſum, - *Ruſcus.*
Hypericum frutex, - *Spiræa.*
Haw, black, - - *Viburnum.*
Hep-Tree, - - *Roſa.*

I.

Indigo, baſtard, - - *Amorpha.*
Jaſmine, Virginia, - *Bignonia.*
Judas Tree, - - - *Cercis.*
Ivy, - - - - *Hedera.*
Jaſmines, Claſs of, - - *Jaſminus.*
Jeſſamy, —— — *Jaſminus.*
Ilex, - - - - *Quercus.*
Juniper, - - - *Juniperus.*

K.

Kidneybean plant, - - *Glycine.*
Kermes, - - - *Quercus.*

L.

Laburnum, - - - *Cytiſus.*
Lucerne Tree - - *Medicago.*
Larch, — - *Pinus.*
Larix, - - *Pinus.*
Laurel, Common and Portugal, *Prunus.*
Laurel, American Mountain, *Rhododendron.*
Laurel, Alexandrian, - *Ruſcus.*
Lilac, - - - *Syringa.*

Lime, - - - *Tilia.*
Linden, - - - *Tilia.*
Laurustinus, - - *Viburnum.*
Lote-Tree, - - - *Celtis.*

M.

Mezereon, - - - *Daphne.*
Milkvetch, - - - *Glycine.*
Mallow, Cyrian, - *Hibiscus.*
Mallow-Tree, - - *Lavatera.*
Medick-Tree, - - *Medicago.*
Moon Trefoil, - - *Medicago.*
Medlar, - - *Mespilus.*
Mulberry, - - *Morus.*
Myrtle, Candleberry, - *Myrica.*
Myric, - - *Myrica.*
Mock Orange, - *Philadelphus.*
Mock Privet, - *Phillyrea.*
Mahaleb, - - *Prunus.*
Mountain-Ash, - *Sorbus.*
Meally Tree, - - *Viburnum.*
Marsh Elder, - *Viburnum.*
Mistletoe, - - *Viscum.*
Maples, Class of, - - *Acer.*
Moon-Seed, - - *Menispermum.*
Myrtle, Dutch, - *Myrica.*

N.

Nettle-Tree, — *Celtis.*
Nickar-Tree, — *Guilandina.*
Nightſhade, woody, — *Solanum.*

O.

Old Man's Beard, — *Clematis,*
Oleaſter, — *Eleagnus.*
Olive, wild, — *Elæagnus.*
Orange, mock, — *Philadelphus.*
Oak, — *Quercus.*
Oak, poiſon, — *Rhus.*
Ozier, — *Salix.*

P.

Peach, — *Amygdalus,*
Papaw, — *Annona,*
Periploca, — *Cynanchum.*
Piſhamin Plum, — *Dioſpyros.*
Privet, — *Liguſtrum.*
Pyracantha, — *Meſpilus.*
Paſſion-Flower, — *Paſſiflora.*
Privet, mock, — *Phillyrea.*
Pine, — *Pinus.*
Plane, — *Platanus.*
Poplar, — *Populus.*
Padus, — *Prunus.*
Plum, — *Prunus.*
Pear, — *Pyrus.*
Paliurus, — *Rhamnus.*
Perriwinkle, — *Vinca.*

Pervinca, —— *Vinca.*
Pepper Tree, — *Vitis.*
Pinaſter, —— *Pinus.*
Petty Whin, — *Geniſta.*

Q.

Quince, dwarf, — *Meſpilus.*
——, baſtard, — ——.
——, common, - *Pyrus.*
Quick Beam, — *Sorbus.*
Quicken Tree, — ——.
Quick, —— *Cratægus.*

R.

Red Twig, —— *Ceanothus.*
Red Bud, —— *Cercis.*
Rock Roſe, —— *Ciſtus.*
Reſt Harrow, climbing, *Glycine.*
Reſt Harrow, ſhrubby, *Ononis.*
Roſebay, dwarf, — *Rhododendron.*
Roſes, Claſs of, — *Roſa.*
Raſpberry, — *Rubus.*
Roan-Tree, — *Sorbus.*

S.

Sycamore, *Acer.*
Strawberry-tree, — *Arbutus.*
Sea-Purſlain-Tree, — *Atriplex.*
Staff-Tree, — *Celaſtrus.*
Snow-drop-Tree, — *Chionanthus.*
Sumach, myrtle-leaved, - *Coriaria.*
Scorpion, Sena, — *Coronilla.*
Service, wild, — *Cratægus.*

Scam-

Scammony, — *Cynanchum.*
Spurge Olive, — *Daphne.*
Spurge Laurel, — *Daphne.*
Spindle-Tree, — *Euonymus.*
Sea-Buckthorn, — *Hippophae.*
St. John's-Wort, Claſs of *Hypericum.*
Saſſafras, — *Laurus.*
St. Peter's-Wort, — *Lonicera.*
Service, wild, — *Sorbus.*
Silk, Virginia, — *Periploca.*
Syringa, — *Philadelphus.*
Sages, Claſs of, — *Phlomis.*
Sloe-Thorn, - - *Prunus.*
Sumachs, Claſs of, - *Rhus.*
Sallow, - - *Salix.*
Stonecrop-Tree, - - *Salſola.*
Sarſaparilla, - - *Smilax.*
Sorbs, Claſs of, - - *Sorbus.*
Services, Claſs of, - - *Sorbus.*
Spiræa Frutex, - - *Spiræa.*
Storax-Tree, - - *Styrax.*
Sena, Bladder, - - *Colutea.*
Sena, Scorpion, - - *Coronilla.*
Shrubby Horſe Tail, - *Ephædra.*
Snow-ball-Tree, - - *Viburnum.*

T.

Trumpet Flower, — *Bignonia.*
Tea, New-Jerſey, — *Ceanothus.*
Traveller's Joy, — *Clematis.*
Thorns, Claſs of - - *Cratægus.*
Trefoil Tree, - - *Cytiſus.*

Thymelæa, - - *Daphne.*
Tarton-raire, - - *Daphne.*
Tulip-Tree, Virginia, *Liriodendron.*
Tulip-Tree, bay leaved, *Magnolia.*
Thorn, evergreen, - *Meſpilus.*
Tupelo-Tree, - - *Nyſſa.*
Turpentine-Tree, - - *Piſtacia.*
Thorn, black, - - *Prunus.*
Trefoil Shrub, - - *Ptelea.*
Toxicodendron, - - *Rhus.*
Tamariſk, - - *Tamarix.*
Thea, South-Sea, - *Viburnum.*
Toothache Tree, - *Zanthoxylum.*
Thorn of Chriſt, - *Rhamnus.*

V.

Virginia Jaſmine, - - *Bignonia.*
Virginia Climber, - - *Bignonia.*
Virgin's Bower, - - *Clematis.*
Varniſh Tree, - - *Rhus.*
Vine, - - *Vitis.*

U.

Umbrella-Tree, - - *Magnolia.*

W.

Wormwood-Tree, - *Artemiſia.*
Widow-wail, - - *Cneorum.*
White-Thorn, - - *Cratægus.*
White-Beam, - - ———.
White-Leaf, - - ———.
Wild Olive, - - *Elæagnus.*

Wood-

Wood-Waxen, - - - *Geniſta.*
Whin, petty, - - ———.
Walnut, - - *Juglans.*
Woodbine, - - *Lonicera.*
Willow, ſweet, - - *Myrica.*
Winterberry, - - *Prinos.*
Willows, Claſs of, - - *Salix.*
Wayfaring Tree, - - *Viburnum.*
Whin, - - *Ulex.*

Yew, - *Taxus.*